

**It's Important to
Know In Time'**Member Associated Business
Papers, Inc.; Audit Bureau
of Circulations.**The Newspaper
of the Industry****Air Conditioning &
REFRIGERATION**Reentered as second-class matter October 3, 1936 at the post office at Detroit, Michigan, under the Act of March 3, 1879.
Trade Mark Registered U. S. Patent Office. Copyright, 1941, by Business News Publishing Co.**NEWS****Further Slash
Is Ordered For
Refrigerators****30 to 52% Cut Scheduled
By OPM For Jan. & Feb.,
Manufacturers Told**

WASHINGTON, D. C.—Production of household mechanical refrigerators will be further curtailed during January and February under an order issued Dec. 4 by Donald M. Nelson, Director of Priorities.

Cuts during the two months will range from 30 to 52%, depending upon the size of the companies involved.

The original limitation, issued Sept. 30, called for reduced output for the five months from Aug. 1 through Dec. 31, ranging from 29 to 45% below average monthly factory sales in the 12 months ended June 30, 1941.

It was stated in the Sept. 30 announcement that the curtailment program drafted by the Division of Civilian Supply contemplated production of 2,007,000 units in the 12 months beginning Aug. 1, 1941, as compared with 3,670,000 units produced in the 12 months ended June 30, 1941. In order to reach this

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**New Rulings Made
On 'Coverage' of
Commercial Tax**

WASHINGTON, D. C.—Further clarification of the new excise tax as it affects commercial refrigerator sales is contained in a series of answers offered by D. S. Bliss, deputy commissioner of internal revenue, in reply to certain specific questions.

Mr. Bliss does not report in these rulings on equipment handled on a consignment or floor-plan basis, but an industry tax authority reports: "I think it is pretty well established that where equipment is sent to dealers for display purposes on a consignment or floor plan basis, the tax enters at the time title passes from the manufacturer."

As an example, he pointed out that in the case of a refrigerator placed on the dealer's floor on this basis, and not sold until several months later, the manufacturer would not become liable for the tax until the dealer reported the sale—assuming, of course, that the manufacturer held title to the equipment during all this time.

One of the specific questions asked was whether or not the tax applied

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**Vacuum Cleaners Given
10% Production Cut**

WASHINGTON, D. C.—A 10% cut in production by large manufacturers of vacuum cleaners for household use has been ordered by Priorities Director Donald M. Nelson. The reduction is based on average monthly factory sales for the 12 months ended June 30, 1941, and covers the period from Oct. 1 to Dec. 31 of this year.

Designed to conserve steel and other critical materials for national defense, the program covers the pattern of curtailment established previously for household refrigerators and home laundry equipment. The curtailment, however, is relatively small compared to those ordered for other

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**Gov't Refrigeration
Specifications Are
Debated by ASRE**

ST. LOUIS—With attendance the largest in years, the American Society of Refrigerating Engineers held its annual meeting here last week—the first west of the Mississippi—in an atmosphere charged with a "where do we go from here" attitude, a state of mind brought about by the Defense emergency.

An "off-the-record" talk by C. W. Shearman, division of purchases, OPM, and subsequent debate by members enlivened the meeting. What Mr. Shearman said in substance was that which is the theme of all government speakers today—that all-out effort for defense is required by industry, and that metal shortages are just as alarming—if not more so—as they seem.

On the other hand, Mr. Shearman declared that the refrigeration industry had as good a story to tell as any from the standpoint of essentiality, but urged that a better story be presented and that the industry be more united in telling the story.

Later, Mr. Shearman joined an A.S.R.E. standards forum which discussed government specifications of refrigeration equipment. After a lengthy round-table discussion a recommendation was made that the A.S.R.E. council take under advisement the appointment of a committee which would review government specifications for refrigeration equipment, and assist in any way possible

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**All-Industry Exhibition January 12-15
Will Spotlight Role of Refrigeration's
Men and Machines In Times of War****Defense Theme
Will Highlight
RSES Sessions**

CHICAGO—With such new words as "priorities," "allocations," "restrictions," and "substitutions" now included in the service and maintenance engineer's dictionary, the eighth annual convention of the Refrigeration Service Engineers Society, Jan. 11-14, will be one of the most important in its history.

With the theme of "Serve by Servicing," and "In 1942 You Have a Job to Do," the eighth annual meeting of the R.S.E.S. is being planned to fit in with the All-Industry program in which all the various industry groups will participate.

In line with tentative plans for "All Out Refrigeration Defense Day" on the second day of the convention, members and guests will join with other industry factors to hear governmental leaders outline defense program and the current position refrigeration

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He's In Charge**C. H. BENSON**
General Chairman of the Committee making arrangements for the All-Industry Refrigeration & Air Conditioning Exhibition.**Plan Special Program
With Government Men**

CHICAGO—Taking on a new and somewhat different significance this year, with the Nation at war, the Fourth All-Industry Refrigeration & Air Conditioning Exhibition will play host Jan. 12-15 at the Stevens hotel to members of the industry who will come not only to see products displayed—but to see and learn how the industry fits into the War program, and to discover what can best be done to maintain the essential food preserving mechanical refrigeration industry at a high peak of efficiency under emergency conditions.

The coming Show is generally looked upon as a central spot for the funneling out of information on just how the industry will operate during the coming year—or years. Efforts have been long underway to keep the key government officials on hand during the meeting, and there will

BULLETIN!

CHICAGO, Dec. 10—President Earl Vallee of Rema has just appointed a special Program Committee for Defense Activities Day of the Fourth Annual All-Industry Exhibition. W. C. Allen of Modern Equipment Corp. is chairman. Other members are A. B. Schellenberg of Alco Valve Co., and K. B. Thorndike of Detroit Lubricator Co.

This committee will meet in Chicago tomorrow to lay plans for the Defense Activities Day, which has now become all-important since the war with Japan has been declared.

be much exchange of information between government men and manufacturers and suppliers, and between manufacturers and suppliers, retailers, and servicemen.

In this connection an all-day "All Defense" program is being planned for Tuesday, Jan. 13 and a special program is being prepared. On Monday of this week Earl A. Vallee, vice president of Automatic Products Corp. and president, Refrigeration Equipment Manufacturers

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**War Industry To Go
On Full-Time Basis**

WASHINGTON, D. C., Dec. 9—An Industrial Mobilization Plan scheduled to be put into effect immediately will place all industry concerned with production of materials for war on a 24-hour basis, and will put all such industry under the direction of the nation's armed forces, it was predicted here.

It will call for drastic changes in production methods, amounting virtually to the reorganization of industry, and will seek to push the United States war effort to double the present output. The program will see the first use of the industrial mobilization plan which Army and Navy officials have been preparing over the last 20 years.

This program is similar to the British system of "scheduled plants," under which no worker can be employed or discharged without the consent of the federal official in charge of operations. All industry

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**Have You Any Interesting
Antiques In Your Plants?**

An Antiquarium of early developments in the domestic and commercial refrigeration industry is to be set up and exhibited at the All-Industry Exhibition in Chicago in January. What have you stored away which you could lend to this important display?

Several thousand persons will see this display. A card will be attached to each exhibit, identifying the product and its owner, and explaining its importance in the growth of the industry.

Government officials who will be present can see by contrast how far this industry has progressed in the last decade and a half, and how great has been the contribution of its manufacturers and engineers to better and more healthful living for the people of the United States.

Every subscriber should enter the search for these "antiques." When you locate one, write Rema headquarters, 111 West Washington St., Chicago for shipping instructions.

**October Sales Hit Furniture Mart Says
140,000; 10-Month
Total 3½ Million**

DETROIT—Shipments of household electric refrigerators by U. S. manufacturers totaled approximately 140,000 units during October to lift the mark for the first 10 months of this year to 3,532,000 units, according to estimates by AIR CONDITIONING & REFRIGERATION NEWS.

October figures set a new high record for that month, the previous high mark of 95,000 having been established in 1940. For the 10 months, world shipments this year are about 926,000 higher than those for last year, which amounted to 2,606,000 units, and are more than 800,000 units higher than shipments for all of 1940, which totaled 2,720,000 units.

World shipments by 10 companies reporting to National Electrical

(Concluded on Page 2, Column 3)

CHICAGO—The largest number of major appliance manufacturers ever represented in a major home furnishings market will have displays in the American Furniture Mart during the winter market, Jan. 5 to 17, 1942, according to Frank S. Whiting, vice president of the Mart and head of the appliance division.

Westinghouse, General Electric, Crosley, Stewart-Warner, and Norge are among the new tenants that will be represented at the market.

Manufacturers and buyers will be given an opportunity to meet and discuss the problems and necessary adjustments of the appliance industry during the market. Due to the importance of dealers remaining aware of conditions in the industry, attendance is expected to equal or exceed that of the last winter market when 13,127 buyers were registered.

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**New Priorities Plan Grants Ratings
To Obtain Materials For 3 Months**

WASHINGTON, D. C.—The new Production Requirements Plan, a streamlined scheme for granting priority assistance to manufacturers engaged in essential production was issued Dec. 3 by the Division of Priorities.

The new procedure is designed to help many thousands of manufacturers of products needed for defense or essential civilian use to obtain priority ratings which will cover their materials requirements for three months at a time. Under the new plan, the number of separate applications for priority assistance to expedite single orders will be reduced to a minimum.

Applications filed in accordance with the Production Requirements Plan will contain information needed by the Office of Production Management for a clear picture of existing inventories and prospective needs for scarce materials.

A manufacturer who applies for

priority assistance under the Production Requirements Plan will show the type and volume of products he has been making, their use in relation to defense or essential civilian needs, the amount of scarce materials he has on hand, and the additional amounts he will require to fill his production schedule for the next calendar quarter.

In determining what priority may be granted to the applicant, the Priorities Division will take into account (1) the amount of defense or essential civilian production involved, (2) the end use of the products, (3) the materials required for production, (4) the overall policies of the Supply Priorities and Allocations Board, and (5) the recommendations of the appropriate industrial branches of the Office of Production Management.

After considering all of these factors, the Priorities Division will

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New Rulings Made on Applications of Commercial Refrigerator Excise Tax

(Concluded from Page 1, Column 1)
to non-refrigerated articles such as meat grinders, scales, butcher blocks, meat slicers, or porcelain platters or trays for the refrigeration fixture itself, when these articles were furnished on the same contract with the refrigeration equipment.

Mr. Bliss replied: "Where porcelain platters and trays are sold on or in connection with the sale of a taxable refrigerator, tax is due on the price for which the complete refrigerator is sold. In other words, the sale price of the platters and trays involved may not be excluded in determining the price for which the refrigerator is sold."

"No tax attaches with respect to the sale of a meat grinder, scale, butcher block, meat slicer, etc., made in connection with the sale of a taxable refrigerator, provided the sale price of such meat grinder, etc. is shown as a separate item on the invoice to the customer or that such sale price can be established by adequate records to the satisfaction of the Commissioner."

Question No. 2 concerns whether or not costs of installation and free-service guarantees frequently included in the selling price of commercial refrigerators should be deducted when determining the correct wholesale price basis.

Mr. Bliss answered this question as follows: "Installation charges in connection with the completion of a bona fide sale of an article to a customer may be excluded in determining the taxable sale price of the article."

"On the basis that a customer may, at his election, accept or reject the servicing arrangement offered by a refrigerator manufacturer, it is the opinion of this office that the charge

for such servicing need not be included in determining the sale price of the article. If, on the other hand, no customer may purchase a refrigerator without paying the service charge in question, it is properly to be considered a part of the sale price of the article."

Deduction of trade-in allowances was the subject of another question concerning application of the excise tax. It was asked if in the case of direct sales by the manufacturer through salesmen or factory branches, where it is necessary to arrive at a wholesale basis (in the absence of a bona fide actual sale at wholesale), the trade-in allowance will be ignored entirely if it will be possible for the manufacturer to write down the value of the trade-in to a wholesale basis.

"The basis for tax in connection with retail sales of refrigerators," Mr. Bliss explained, "is the price for which the same or similar articles are sold by manufacturers at wholesale in the ordinary course of trade and in the absence of special arrangements."

"Under the circumstances, it is unnecessary to consider the allowance made for any 'trade-in.'"

Regarding the sale by the manufacturer or his agent of used equipment accepted in trade on new merchandise, Mr. Bliss stated: "Provided that tax was once paid to the government with respect to the sale of an article, no tax is due with respect to the sale of such article either by the manufacturer or by any other person, unless, of course, it is altered or 'rebuilt' prior to resale to the extent that it becomes a new and different article."

The question of how the tax provisions affect new parts or controls or

refrigerants used in service work done by an agent of the manufacturer was phrased in this fashion: "Do we correctly assume that where the agent of the manufacturer performs service work, in the course of which he furnishes taxable merchandise, he will be considered for the purpose of the excise tax a manufacturer-vendor, and thus liable for the proper tax, unless already paid by the manufacturer of such parts or goods? I believe that in most, if not all, cases of this kind, the parts furnished will have already carried the tax. Our problem is whether these branches or service organizations will be expected to file returns, and otherwise comply with the procedure."

Mr. Bliss clarified this situation with the following statement: "If a refrigerator manufacturer, through an agent, renders service in connection with which such agents installs components purchased tax paid, neither the manufacturer nor his agent is liable to pay the tax."

10-Month Household Sales Pass 3,500,000 Units

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Manufacturers Association totaled 131,524 units during October, bringing the 10-month mark for Nema firms to 3,290,568 units, as against 2,477,139 in the same period of last year. Nema shipments last October totaled 89,924 units.

Nema shipments to U. S. distributors and dealers alone amounted to 123,672 units during October, for a 10-month total of 3,124,437 units. Of the month's Nema shipments, 83,394 were 6-foot units, and 22,118 were 7-foot units. For the 10 months, shipments of 6-foot cabinets total 2,472,672 units, while 7-foot cabinet shipments amount to 249,543 units and 8-foot shipments 247,310 units.

Vacuum Cleaner Output Cut 10%

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civilian durable goods fields, since the industry requires relatively small amounts of raw materials.

Nineteen companies will be affected by the curtailment. The industry already has made substantial advances in substitution of critical materials. Aluminum has been practically eliminated from recent models, resulting in expected savings of about 3,000 tons per year.

Manufacturers whose average monthly sales are from 5,200 units up, are required to cut production by 10% below monthly averages for the year ended June 30; or they may instead produce 15,600 units during the period from Oct. 1 to Dec. 31, whichever output is greater. Small manufacturers with average monthly sales below 5,200 units are not permitted to exceed average monthly sales in the year ended June 30. The industry's current production, it is said, is about 120% of 1940 output.

Jan. Furniture Mart May Be Biggest

(Concluded from Page 1, Column 3)

Among those who maintain permanent quarters and who will have exhibits will be Kelvinator, Hotpoint, Philco, Frigidaire, Easy Washing Machine Co., and American Stove Co.

Products to be shown include radios, refrigerators, stoves and ranges, washing machines, vacuum cleaners, and kitchen cabinets. New lines will be shown by many manufacturers, who indicate that they will write all the business in January that they feel they can deliver.

Cooling a 'Must' For Pasteurized Milk, Scientist Warns

BALTIMORE—Ideal refrigeration conditions—i.e., below 40° F.—are absolutely essential to the proper preservation of even pasteurized milk for any extended period of time, according to a statement by Dr. J. Howard Brown, associate professor of bacteriology, Johns Hopkins Medical School, member of the Association of Medical Milk Commissions of Maryland, and chairman of the Council of American Medical Milk Commissions.

Dr. Brown made this assertion in backing up Dr. Huntington Williams, health commissioner of Baltimore, in his opposition to extension of the time between the pasteurization of milk and its retail sale beyond the present limit of 36 hours. Baltimore dairies are seeking a relaxation of the law so that they may abolish Sunday deliveries of milk.

Pasteurized milk will not sour, as will milk which has not been pasteurized, but unless it is kept properly refrigerated it will putrefy, Dr. Brown declared.

The loss of food value in the milk and the chance of getting disease from it increase in direct proportion to the length of time after pasteurization that the milk is kept without adequate refrigeration, he stated.

Pointing out the fallacy in the popular belief that pasteurized milk is sterile, Dr. Brown explained that pasteurization merely reduces the disease organisms to the point where they are not dangerous. But the milk is seeded, he maintained, and if it is not kept under proper conditions the bacteria may multiply and increase the danger that the consumer will contract disease.

DEPEND ON PENN

In Your War on Waste; In Your Work for Defense

● Refrigeration and Air Conditioning are twin towers of strength in America's all-out defense. Both are vital to the nation's well-being and safety. And for the efficient operation of both, you can depend on Penn Controls.

Penn is doing its part in direct defense work—helping the nation arm. But we regard of equal importance to national defense and welfare, our service to these great industries.

Food—wholesome, healthful food—is vital for fighting strength and civilian morale. It is one of the most important sinews of war. And to conserve America's food supply...to keep it fresh and wholesome...to avoid the waste and loss of spoilage...requires mechanical refrigeration—in warehouses, commissaries, stores and markets, as well as in homes.

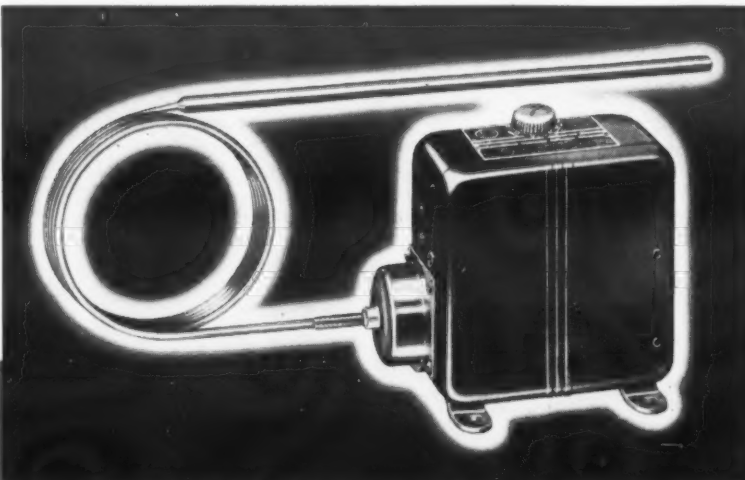
In scores of industries, now turning out materials for our

defense, air conditioning is—not a mere luxury for comfort—but a vital necessity upon which the production processes themselves depend.

So to you, whose job it is to maintain the commercial refrigeration and air conditioning equipment of our nation, we pledge our fullest support. Whatever your need may be in refrigeration controls...choose the exact type to fit the job from Penn's complete line of automatic controls. And in the face of the extraordinary demands on our facilities, we shall bend every effort to keep deliveries and service as nearly normal as possible.

Penn Electric Switch Co., Goshen, Indiana.

PENN HELPS THE NATION ARM
By the manufacture of specialized control devices for the Army, Navy and Defense Industries.



VISIT THE PENN EXHIBIT • BOOTHS 210-212
at the Refrigeration Show
January 12-15, 1942 • Stevens Hotel, Chicago



AVRGAIRE • Sensation of the Industry!

In the few months since its introduction, this new Penn Control has won instant and widespread acceptance for its extraordinary service. AVRGAIRE maintains temperatures within 1° without erratic short cycling...provides selective defrost...and accurate humidity control.

Cold Anticipation is the key to AVRGAIRE'S remarkably close control of box temperatures. A revolutionary new idea in bulb application is the basis of this control which not only detects actual box temperature, but also senses the temperature trend. For walk-in coolers, reach-in coolers, display cases, florist boxes and all above-freezing applications...choose AVRGAIRE.

PENN
REFRIGERATION
AIR CONDITIONING
CONTROLS
HEATING • PUMPS
AIR COMPRESSORS

WHAT

About the New 1942 General Electric Refrigerators?



SOON you will get all the answers in person! For G-E Previews are being held, as always, from coast to coast. And when you see the new 1942 G-E Refrigerators you're going to stand right up and shout!

As always, the emphasis has been placed first on quality, and the G-E Refrigerator of '42 will add new lustre to G-E's brilliant record of long-life and enduring economy.

As always, the G-E Refrigerator will be powered with the famous sealed-in-steel G-E Thrift Unit—and this year it uses even less current than ever!

As always, the new General Electric Refrigerators are prize-winning beauties—with features that attract and interest even the casual shopper.

As always, there will be G-E models for every need—with sound step-up selling features that mean greater dollar volume.

As always, G-E dealers will be supported by outstanding national and local advertising and sales promotion plans.

And as always, G-E dealers will have the rich sales reservoir of the complete line of G-E Appliances to draw upon.



GENERAL ELECTRIC

Those Who Have Been Say the All-Industry Show Has a 'Dollar-and-Cents' Value

Many Believe Coming Show Will Be the Most Important

"THE SHOW IS DIRECTLY RESPONSIBLE FOR ALL THE NEW BUSINESS I HAVE PICKED UP," DECLARES JOHN S. VESEL OF VESEL ELECTRIC & REFRIGERATION SERVICE, ELY, MINN., WHO ADDS THAT IT GAVE HIM "A NEW SLANT ON THE INDUSTRY AS A WHOLE."

"Since the last Exhibition I have done things which I would never have attempted to do as the Show is directly responsible for all the new business I have picked up," he says. "I must admit that I gained technically, as there were plenty of questions answered to my satisfaction and benefit. The service we render is much better and faster."

"Also I took on a line of commercial and household appliances, which have paid very well. The Show certainly gave me a different slant on the industry as a whole, all resulting in a larger net income, which is the thing that we are all after, for without it you know what you can do."

"The mere fact that I attended the Exhibition last January has made me a man of more importance."



J. L. Driskell (left) attends a meeting during a previous Exhibition.

AN EVENT REALLY HAS TO BE GOOD TO BE WORTH THE TIME AND EXPENSE INVOLVED IN A 3,500-MILE TRIP, BUT TO J. L. DRISKELL, WHO PLANS TO MAKE THE TRIP AGAIN FROM HIS HOME IN BURLEY, IDAHO, THE SHOW IS WORTH EVERY-

THING IT COSTS HIM, AND MORE.

"The Show has three main reasons for me to give it my time and money for the 3,500-mile trip," says Mr. Driskell.

"1. Making new friends and renewing old friends of men interested in the same subject as I am."

"2. Getting first hand information from qualified engineers in the field who know what it is all about."

"3. Through the exposition booths we can see the application of new products in the field of air conditioning and refrigeration, which through normal channels would take several years for them to penetrate into this part of the western states. We do not have a store that we can go to see the merchandise within 200 miles that carries a stock of commercial refrigeration or service parts."

"The predominant reason of all is to be in attendance at R.S.E.S. convention, and to work with that group to help keep refrigeration service on an equitable basis."

"I also find that it is one of the most effective forms of advertising I have found in promoting service activities over the territory I cover."

...

"5,760 MINUTES PACKED FULL OF IMPORTANCE AND INTEREST" IS THE EXPRESSION M. C. REEFER, PRESIDENT OF COMMERCIAL EQUIPMENT CORP., KANSAS CITY, MO.,

Direct Testimony - - From the Far Corners of the Country

Editor's Note: "Ask the man who has been to one," is about as good a way as any to find out whether a trip to see an affair such as the coming All-Industry Refrigeration & Air Conditioning Exhibition is worthwhile.

So, instead of trying to paint a picture of its own of the benefits to be obtained through attendance at the Exhibition, the NEWS asked a number of people who had attended previous All-Industry Shows for their opinion as to what the Show had meant to them.

The replies that are published on this and following pages represent a pretty fair cross section of the various types of businesses found in the refrigeration and air conditioning industry. Furthermore, to make the test of opinion as stringent as possible, the NEWS—as will be noted in the replies—asked for opinions from those who came from considerable distances and therefore were put to the most time and expense to make the Show.

Most significant in the replies are the emphasis placed on the actual dollar and cents value of attendance at the All-Industry Exhibition, and the feeling that the coming Show will be more important than ever—because of the present Emergency.

USES TO CHARACTERIZE HIS IMPRESSION OF THE 1941 ALL-INDUSTRY SHOW.

"What did I get out of the 1941 All-Industry Refrigeration and Air Conditioning Exhibition in Chicago last year?" Mr. Reefer asks.

"Four days, or roughly 5,760 minutes, packed full of importance and interest."

- "1. Important new products
- "2. Important new processes
- "3. Interesting and important people

- "4. Interesting entertainment
- "5. Absolutely necessary contacts with the entire industry."

"Also, a realization that it is important for me to attend this meeting again this coming year."

INFORMATION OBTAINED AT LAST YEAR'S SHOW "LAID THE GROUNDWORK FOR MOST OF MY DECISIONS IN CARRYING MY BUSINESS TO A SUCCESSFUL YEAR," SAYS F. E. MORLEY, OF RESCO, NEW HAVEN, CONN.

"The Exhibit itself could not have been better executed by any other industry," Mr. Morley says. "I certainly appreciated the opportunity to

talk to my suppliers' personnel.

"I also believe that I have had a successful year because of the fact that I had first-hand knowledge of new materials and equipment that they had to offer."

"The close cooperation that we have had throughout our New England territory originated from the day that we all attended the Exhibit. I believe that as beneficial as last year's Show has been to me, this year should be more important."

...

"THE BEST EDUCATIONAL WEEK POSSIBLE FOR MEMBERS OF OUR INDUSTRY" IS THE VALUE WHICH G. A. POST OF LANGSENKAMP CO., INDIANAPOLIS.

"An attendance to this Show if properly used is unquestionably the best educational week possible for members of our industry; here one can compare the lines of various manufacturers and get first hand information on the new and improved items so essential to our business," Mr. Post declares.

"An opportunity to inspect and actually 'get the feel' of the many products on exhibition give one a sense of values not to be had by reviewing all of the literature that could be sent through the mails."

...

"EVERYONE TO WHOM I HAVE TALKED, WHO HAS ATTENDED IN THE PAST, IS PLANNING TO ATTEND THE SHOW THIS YEAR," SAYS BROUSE D. RINEHART, OF RINEHART'S, INC., RICHMOND, IND.

"Past Shows have always been beneficial not only as to contacting personally different representatives of the industry, but also in being able to keep up on the latest developments," says Mr. Rinehart. "Naturally, there is always the humorous or social side which is enjoyable."

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Perishables must be Protected!

This Is Refrigeration's Part in National Defense

National Defense requires every industry to do its part in the conservation of materials and manpower. Strangely enough, however, this is the basic reason for mechanical refrigeration's very existence...to protect the perishable effort of manpower with a minimum of spoilage!

That is why Sporlan has developed selective charged thermostatic expansion valves with the clearly identified symbols U-Z-K-L-G-C and O. For Sporlan engineers were first to prove that no one charge can perform perfectly on several types of installations.

When determining the thermostatic expansion valves to be used on refrigeration and air conditioning installations in this united effort to defend our nation...be sure to think in terms of perfect performance.

SPOEHRER-LANGE
COMPANY

Manufacturers of Sporlan Selective Charged Valves for Perfect Performance on All Installations
3725 COMMONWEALTH AVE., SAINT LOUIS, MISSOURI



F. E. Morley (left) enjoys the All-Industry Banquet at a Show held in former years.

Refrigeration and air conditioning are vital to defense

VISIT THE

1942 ALL-INDUSTRY REFRIGERATION AND AIR CONDITIONING EXHIBITION

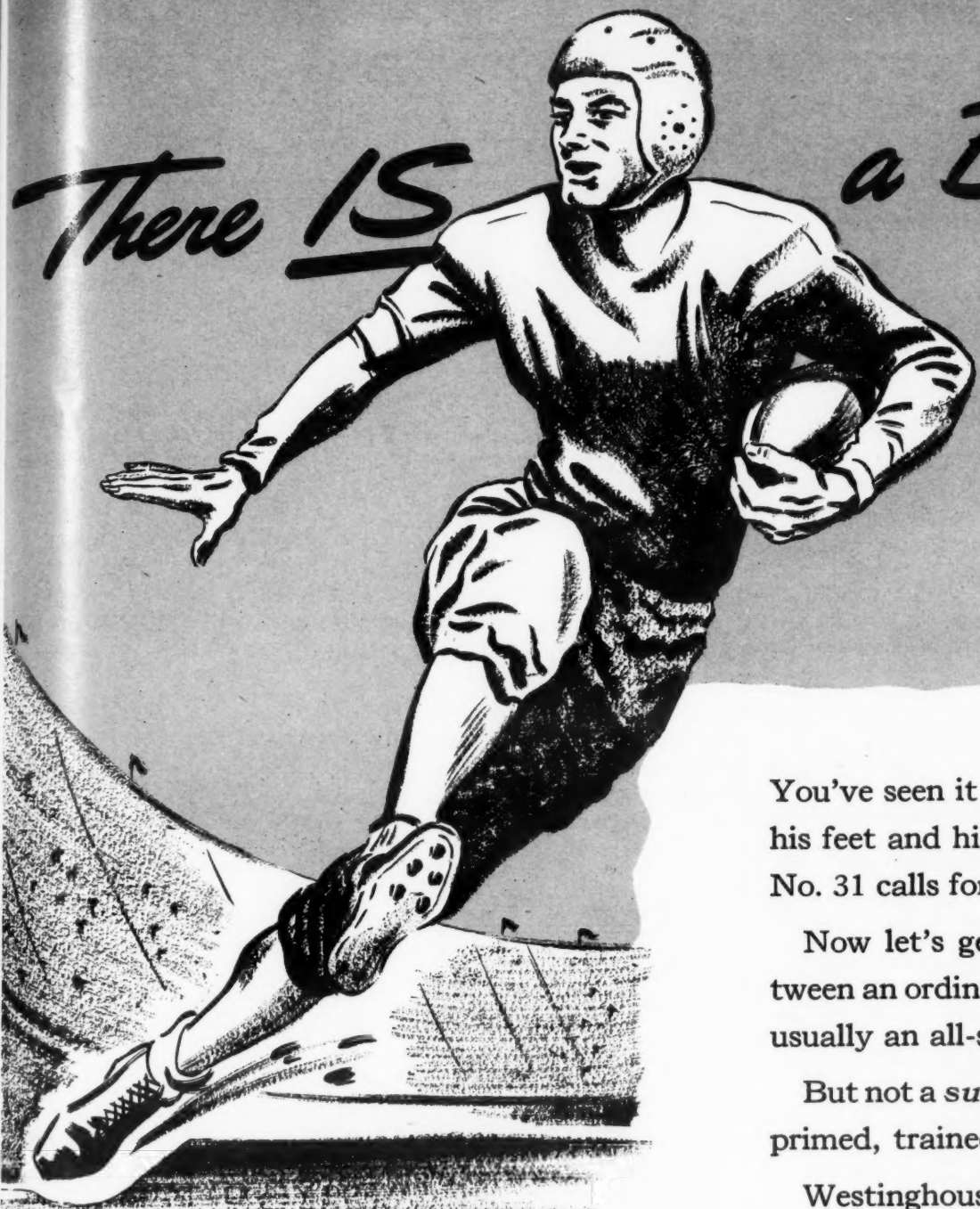
at the Stevens Hotel, Chicago, Jan. 12 - 15, 1942

(Our contribution will be on display at BOOTHS 416 - 418)

JAS. P. MARSH CORPORATION

2067 Southport Ave., Chicago, Ill.

Quality Instruments and Heating Specialties Since 1865



You've seen it happen many times. The coach beckons. No. 31 leaps to his feet and hurls for the huddle. The referee checks the substitution. No. 31 calls for the critical play . . . and takes 'er over for a touchdown.

Now let's get this straight. In football, there's a vast difference between an ordinary substitute and a strategic *substitution*. The former is usually an all-season bench warmer praying for a chance to do his stuff.

But not a *substitution*. He's the guy who has been held back; coached, primed, trained for a special play, and sent in when he's needed most.

Westinghouse substitutions, now taking the place of certain critical materials needed for Defense, are like that. They're good! Some are actually better than the materials formerly used. On our production lines these special emergency materials are scoring production touchdowns. They deserve cheers and they're getting them.

As far as Westinghouse *substitutions* are concerned you can depend they'll do a job you'll be proud of.

They maintain Westinghouse quality.

BY WAY OF ILLUSTRATION...HERE ARE A FEW YOU'LL LIKE TO KNOW ABOUT

REFRIGERATORS. *Evaporator Door*—Formerly polished Aluminum. NOW porcelain enamel with ornamental facing. It's heavier, good looking (some people even think it's better looking) and it is more expensive. But Westinghouse isn't pinching pennies when it comes to maintaining quality control.

RANGES. Original *Unit Pan* was nickel chrome steel. NOW it's chrome steel. Since nickel is a softening agent making the metal easy to form, its omission requires an extra and costly operation; two pieces of stainless steel welded together. But the new Pan is just as easy to clean and will last just as long.

ROASTERS. Bombers need Aluminum, so we changed our lid to brass—which required both nickel plating and chrome plating. Next we found that brass was wanted for armor plate. So again our Lab was called on. This time they came up with the present lid of polished chrome steel. It's just as strong...retains a high luster longer and it's easier to clean. But again it costs us more money.

DEFENSE COMES FIRST . . . AND WE'RE CO-OPERATING . . . NEVERTHELESS
WESTINGHOUSE CONTINUES TO MAKE QUALITY ELECTRIC HOME APPLIANCES

Westinghouse

THE *Leisure Line* OF ELECTRIC HOME APPLIANCES



'Personal Attention From the Experts' Is Service Rendered At the All-Industry Show

(Continued from Page 4, Column 5)

"YOU CAN LEARN MORE IN ONE DAY AT THE EXHIBITION THAN FROM WEEKS OF STUDYING VARIOUS MANUFACTURERS' SPECIFICATIONS," DECLARES A. G. POPE OF PFLUGRADT CO., COMMERCIAL REFRIGERATION AND AIR CONDITIONING DISTRIBUTOR OF MILWAUKEE.

"Last year's Exhibition really was an 'eye-opener' for me, as it was the first of its kind I have ever attended," Mr. Pope says. "I was so busy at the time that I felt I could not afford to spend a whole day away from work, but after spending several hours learning about things I never knew existed, I knew I could not afford to spend less than two days at the Show."

"I frankly feel that one can learn more in one day at the Exhibition than from weeks of studying various manufacturer's specifications. To be more specific, one is always running into unusual applications for refrigeration equipment, and without an accurate knowledge of all the latest equipment, it is sometimes hard to find exactly what you want. In a dozen instances this summer I have suddenly remembered that I saw just

what I wanted at the Exhibition.

"It is unnecessary to go into detail here on everything that is of interest to anyone connected with the industry. One can find everything of the latest design, new ideas in installation, labor-saving devices, and personal advice on unusual problems direct from manufacturer's representatives, all of which is invaluable to the man in the field, whether engineer, salesman, or service man."

"The personal contacts with manufacturers and leading engineers of the industry are of vital interest to me."

"WE FEEL THAT A LARGE PART OF OUR SUCCESS HAS BEEN DUE TO PERSONAL CONTACTS MADE AT THE SHOW," DECLARES HARRY G. HOFFMAN OF HOFFMAN SUPPLY CO., SPRINGFIELD, MO. PARTS JOBBER, WHO WILL BE ATTENDING NEXT JANUARY'S EXHIBITION FOR THE THIRD TIME.

"It will be the third time we have attended as it is only the third year we have been in business," says Mr. Hoffman.

"In that three years, we have expanded from a 'hole in the wall'

to a sizeable store carrying a complete line of replacement parts for the refrigeration industry.

"We feel that a large part of our success has been due to personal contacts made at the Show, and the literature and information which we would not have received had we not attended."

"Our customers were also interested in our going as they felt after our return that they had the inside dope as to what was new, and some even gave me service problems which I had ironed out at the Show by talking to men that they wanted me to talk to."

"THERE IS SCARCELY A DAY THAT I DO NOT SEE SOMETHING IN USE OR INSTALLED THAT I DO NOT RECALL THE ALL-INDUSTRY SHOW," DECLARES FRANK H. RICHARDS, REFRIGERATION SERVICE MAN FROM MANHATTAN, KAN.

"I came away from the Show last year with the knowledge that the industry with which I am affiliated is a large and far-reaching one," Mr. Richards says. "One that extends into many fields which we do not naturally associate it with."

"I met men engaged in the same business, that I am in, and who talked the same language and had or have the same kind of problems. They were from practically every state in our Union, and from the Dominion of Canada as well. It was especially interesting when looking on some appliance untried by myself to be able to talk to some one who had installed and operated it in the

field. I met the representatives of various manufacturers and in some cases the manufacturers themselves. I came away with the knowledge that they were men who were doing things. I found that our aims were very similar. They were making every effort to produce and sell something which would do an old thing in a newer or better way at less cost to the user. Just as I and all other service men are trying to give our customers better service at a fair price.

"The exhibits in themselves were very educational, and it was a pleasure to see and examine items which were only an advertisement or a picture in a catalog before. There is scarcely a day that I do not see something in use or installed that I do not recall the All-Industry Show."

"While at the Show I met personally many of the men whose names and faces are in the news, and fighting our battles in the present trying time. I feel that I can proudly call them friends."

"THE SHOW AFFORDS AN IDEAL OPPORTUNITY OF DISCUSSING FIRST-HAND THE VARIOUS PRODUCTS WITH THE MEN WHO DESIGN AND MANUFACTURE THIS EQUIPMENT," IN THE OPINION OF H. F. NYE OF RAILWAY & ENGINEERING SPECIALTIES LTD., TORONTO, CANADA.

"It would be pretty hard to state in a letter all the benefits derived from such a Show as the Refrigeration Industry sponsored last year, as it sometimes takes considerable time to utilize all the information gained at such a Show," Mr. Nye says.

"Thorough understanding of design, application, and purpose of equipment being sold is essential to



Alex Holcombe (left) trades gossip during a previous Show.

"YOU WILL GET OUT OF IT," IS THE WAY A. H. HOLCOMBE, JR., OF VICTOR SALES & SUPPLY CO., PHILADELPHIA JOBBER, SUMS UP HIS EVALUATION OF PREVIOUS ALL-INDUSTRY SHOWS.

"It has been the experience of everyone attending previous Exhibitions that they have benefited considerably," he asserts. "The more you put into such a visit the more you will get out of it. Everyone should be urged to attend this great Exhibition. We must all work together to keep the refrigeration equipment of the country in good operating condition."

"OUR CONVENTION IS JUST A BIG FAMILY, GETTING TOGETHER, TO BECOME BETTER ACQUAINTED, DISCUSS PROBLEMS, HAVE A GOOD TIME, AND LEARN MORE HOW TO PULL TOGETHER," IS HOW THE SHOW APPEALS TO G. W. PERRINE, SPRINGFIELD, OHIO.

"A very critical competitor, remarked to me last year that conventions were a waste of time and money," Mr. Perrine explains. "I immediately tried to induce him to attend our 1941 convention, which he reluctantly did. At the end of the Show, he slapped me on the shoulder and said, 'George, from now on, we are pulling together.'"

INFORMATION ON THE OTHER FELLOW'S PRODUCTS AS WELL AS HIS OWN IS ONE OF THE BIG THINGS WILBUR A. STEWART OF STEWART ELECTRIC CO., BROWNS-TOWN, IND., GOT OUT OF HIS ATTENDANCE AT LAST YEAR'S ALL-INDUSTRY SHOW.

"The visit last January was a thrill to me, as I have never been able to see such a complete display of all the important manufacturers of refrigeration equipment parts and tools," Mr. Stewart says.

"Also I gained much important service information, as well as being in position to know the other manufacturers' products as well as being able to ask myself if I was handling the correct lines of merchandise and knowing the other fellow's products."

(Continued on page 8, Column 1)

you pay!



NATIONAL Defense is a big job. An expensive job. And remember . . . YOU will sign the check.

Food is one of the most important prerequisites to the creation of an efficient armed force. Food must be stored, transported and served efficiently to enable this force to function. Today, as always, "An army travels on its stomach."

The refrigeration industry . . . making possible the economical handling of fresh foods . . . is doing its important part in building a happier, healthier, huskier army and navy. Which is just another way of saying that the refrigeration industry is holding DOWN your Defense bill . . . holding DOWN the amount of the check you will sign.



Bush Products are used by the Army, Navy, Air Force and the Merchant Marine to meet literally hundreds of cooling and air conditioning requirements.



BUSH MANUFACTURING COMPANY

★ Commercial Cooling Units ★

Hartford, Connecticut . . . 610 N. Oakley Blvd., Chicago, Illinois

And remember THIS. Behind our armed force is a far larger civilian army. An army just as necessary to National Defense because it produces the money and munitions which are as necessary as man power. The refrigeration industry must CONTINUE to serve this civilian army . . . must draw upon its every resource to meet ALL vital demands, both military and civilian. To this policy we are dedicated.

VISIT THE BUSH EXHIBIT AT THE ALL-INDUSTRY SHOW AT CHICAGO . . . JAN. 12-15 . . . SECTIONS 205 AND 207



H. F. Nye (standing) Canadian supplier, inspects some products on exhibit at a former Show.

doing a good job in selling, and the Show affords an ideal opportunity of discussing first-hand the various products with the men who design and manufacture this equipment.

"The Show affords in some cases the only opportunity of meeting a large number of manufacturers at one time, and meeting the manufacturer personally certainly goes a long way towards creating a more friendly feeling between the maker and seller of equipment, and a better understanding of the business problems both are faced with, especially in such times as we are passing through at present."

"THE MORE YOU PUT INTO SUCH A VISIT, THE MORE

DOLE PLATE-TYPE Evaporators



. . . are the Nation's first and last line of defense on land or sea for the protection of all perishables. Economical to operate, easy and inexpensive to install.

Come to the 4th All-Industry Refrigeration and Air Conditioning Show Jan. 12-15, 1942, Stevens Hotel, Chicago. Our Booth No. 510.

DOLE REFRIGERATING COMPANY
5910 North Pulaski Road • Chicago, Illinois
NEW YORK BRANCH, 601 WEST 26th STREET, NEW YORK CITY



M. G. O'HARRA
Vice-President in Charge of Sales



P. H. PUFFER
General Sales Manager



N. M. FORSYTHE
Assistant General Sales Manager



J. M. TENNEY
Sales Manager—Household Refrigeration



E. R. BRIDGE
Sales Manager—Washers

Here's Our Promise to Every Norge Dealer

FIFTEEN years ago Norge entered the appliance market with the now famous Rollator Refrigerator and laid the foundation of a line that was destined to expand far beyond that beginning.

In the years that followed, the growth of the Norge business was phenomenal. No refrigerator had ever before gained so much public acceptance so quickly, and, as Norge grew, so too, did the corps of independent distributors and dealers handling the Norge product.

Many of them found in Norge business a major or exclusive source of income and they prospered in proportion to their efforts in the good American way.

The success of the Rollator Refrigerator and the loyalty of Norge owners, created, in time, a demand for related appliances and presently Norge distributors and dealers were able to offer a complete line of household appliances and commercial equipment, all bearing the Norge name. This line includes:

- | | |
|-----------------------------------|----------------------------|
| Electric Refrigerators | Gas Ranges for natural or |
| Electric Ranges | manufactured gas |
| Electric Washers | Gas Ranges for bottled gas |
| Electric Water Coolers | Gasoline Motor Washers |
| Electric Beverage Coolers | Oil-burning Home Heaters |
| Electric Commercial Refrigeration | |

In these ten items the people who represent Norge found a diversity of products that enabled them to expand their operations far beyond their original sphere and to open many doors to added sales.

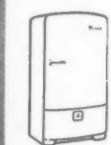
They could supply necessary appliances and equipment for homes, stores, offices, factories, clubs, hotels, etc. They could sell in town or country. Many prospects bought several appliances. Norge had the line.

TODAY the diversity which has meant so much in the past means more than ever before, for, with quotas on each item necessarily curtailed, dealers must look to *all* items for the opportunity to maintain volume and revenues.

Right now, our job as the "men behind the line for '42" is to render you every possible cooperation in balancing your quotas of all the Norge products you handle to the end that you can satisfy as many customers as possible and in so doing, satisfy yourself that Norge is indeed "something solid to tie to"—now and later.

This cooperation we pledge to every Norge dealer.

The Norge Sales Department



ROLLATOR
REFRIGERATION



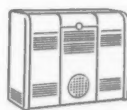
ELECTRIC
RANGES



RO-TATOR
WASHERS



SPIRAL-SPEED
GAS RANGES



OIL-BURNING
HOME HEATERS



COMMERCIAL
REFRIGERATION

See NORGE before you buy!



NORGE DIVISION BORG-WARNER CORPORATION
670 East Woodbridge Street, Detroit, Michigan



E. J. KANKER
Sales Manager—Gas Ranges



A. H. KITSON
Sales Manager—Electric Ranges



W. M. DAVIS
Sales Manager—Home Heaters



ARCH BLACK
Sales Manager—Commercial Refrigeration

Something Solid to Tie to... **NORGE**

Procedure Outlined For New Method of Priority Assistance

(Concluded from Page 1)

be able to grant the manufacturer a preference rating or ratings, geared to his needs and the importance of his products, which can be used continuously over a calendar quarter to obtain critical materials.

Ratings under the new plan may apply to all or to any specified part of the producer's materials requirements. If all of the products covered in his application are destined for defense or essential civilian use, he may be given a priority rating covering 100% of his needs. In other cases the rating may apply only to the percentage of his materials requirements which will be directly incorporated in products regarded as being of basic importance in defense or in the national economy. The producer may receive one or more ratings under the plan.

The Production Requirements Plan will replace the old Defense Supplies Rating Plan.

It is expected that this new device will permit an eligible manufacturer to use his rating or ratings to get all of the materials covered, and he will not have to bother to apply for aid by filling out PD-1's (the standard application form for an individual rating) or to extend each of the individual ratings on the orders he receives. The amount of paper work involved in filling defense orders will thus be substantially reduced.

Before the inauguration of the Production Requirements Plan, a manufacturer whose products were used partly by the Army and Navy, partly by defense plants or by vital public services such as municipal fire and police departments, and partly by ordinary civilian industry might have had high priority ratings on some of his orders, lower ratings on others, and no rating at all on the rest.

The net result was that he had to use a number of different processes in order to operate. The only courses open to him were to extend the high ratings on his orders in each individual case, or to use the Defense Supplies Rating Plan which gave him an A-10 rating for his defense orders only, or to make many separate applications.

The new plan will simplify this substantially. The manufacturer will first obtain form PD-25A. On this form he will show the kind and volume of products he has been making, the priority rating of orders he has filled in a recent quarter, the destination or end use of his products, and the inventory of materials which he has on hand, together with his anticipated materials requirements for the next calendar quarter.

The new plan is to be applied first on a company basis. It is expected to form the foundation for similar plans on an industry basis as rapidly as the overall needs of the various industries are known in the Office of Production Management.

Since the anticipated requirements of a manufacturer may change if the pattern of his defense orders changes during a calendar quarter, the Production Requirements Plan provides that interim reports may be filed. The first quarter for which applications under the new plan will be received is from Jan. 1 to March 31, 1942.

The new PD-25A application forms are now ready for distribution from the Priorities Division of OPM in Washington, or field offices.

Some of the main points of the new plan follow:

The Production Requirements Plan will go into effect for the first calendar quarter of 1942.

Complete inventory information must be given. Inventories must be held at the minimum practicable level.

A list of critical materials known as Materials List No. 1 is part of the plan. The preference rating granted may be used only to obtain materials on this list except when other items are specifically named on the form in a section provided for that purpose.

The rating will apply only to materials needed for defense or essential civilian production, and cannot be used to obtain capital equipment. Such capital items—for example, machine tools and other production goods—must be obtained in the usual

way by filling out application form PD-1, if they cannot be obtained without aid.

Application form PD-25A may be reproduced by anyone who wants to use it so long as it is reproduced exactly in its original form, size, color, and phraseology.

All communications and applications should be addressed to the Production Requirements Plan Section, Division of Priorities, Office of Production Management.

An applicant granted a rating under the plan serves the rating on his suppliers by a prescribed endorse-

ment on his purchase orders.

Suppliers of the applicant may extend the rating to obtain delivery of materials which are to be physically incorporated in the applicant's products, in accordance with the terms of the preference rating order issued in connection with the plan.

No preference ratings other than those authorized in form PD-25A may be used by the producer operating under the plan to obtain deliveries of production materials or maintenance, repair and operating supplies unless specific authorization is granted.



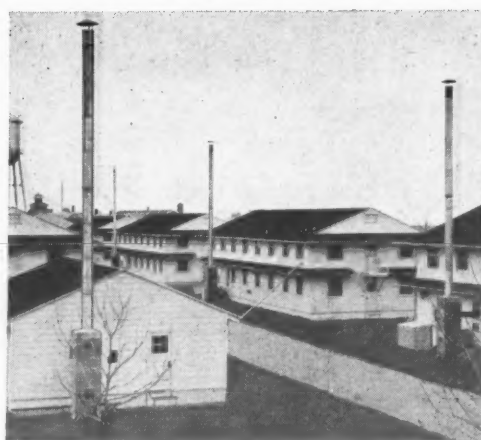
**I RESOLVE RIGHT NOW
TO GO TO THE CHICAGO
REFRIGERATION SHOW
TO GET THE FACTS ON
WHY REFRIGERATION
IS ESSENTIAL TO
DEFENSE AS WELL AS
CIVILIAN NEEDS**

DEFENSE AND fedders REFRIGERATION PRODUCTS ARE inseparable Partners because....



OFFICIAL NAVY PHOTOGRAPH

ON SUBMARINES Fedders Ice Cube Makers are providing for the health and comfort of officers and crew in this unusually arduous service.



IN ARMY CAMPS where tons of perishable foods must be kept in prime condition, Fedders Unit Coolers and Fin Coils are used in walk-in and reach-in coolers.



OFFICIAL NAVY PHOTOGRAPH

IN ARMY AND NAVY HOSPITALS Fedders refrigeration products are not only safe-guarding foods but keeping serums at correct temperatures.



OFFICIAL NAVY PHOTOGRAPH

IN FOOD STORAGE PLANTS refrigeration is necessary for conserving meats, dairy products and other perishables for essential civilian needs.

First things are first in this emergency. And refrigeration of foods for America's armed forces as well as essential civilian needs is officially approved with preference ratings.

Fedders coils, unit coolers, condensers, and ice cube makers are now available for use in all branches of food processing, storage, wholesaling and transportation.

Decide **RIGHT NOW** to attend the Chicago Show January 12th to 15th. You will learn why **DEFENSE NEEDS REFRIGERATION**, and how Fedders can help you do your part.

fedders

MANUFACTURING
COMPANY, INC.

BUFFALO, N. Y.

In '42 you have a job to do!
—and you can do it better if you attend the FOURTH ALL-INDUSTRY REFRIGERATION AND AIR CONDITIONING EXHIBITION—January 12 to 15, 1942, HOTEL STEVENS, CHICAGO

Protecting Health

Hospital's Refrigerated 'Blood Bank' Warns If Temperature Rises Too High

DAYTON, Ohio—Frigidaire research engineers, operating under the auspices of the Kettering Institute for Medical Research, recently created and installed a blood bank, with special precision control and indicating circuits, at the Miami Valley Hospital in Dayton.

Equipment consists of a Master 8.3-cu. ft. Frigidaire with special controls to maintain a constant 40° F. temperature. Controls include a thermometer-type thermostat limiting operation of the compressor to produce a constant 40° box temperature, plus or minus only 1° F. Should the temperature ever fall to 38°, a tube control causes a tiny green indicating lamp outside the cabinet to light up. And if the temperature should rise to 42°, another tube lights up a red indicating lamp situated alongside the green.

As a further precautionary measure, the cold control has been replaced by an air bulb thermostat which cuts in at 50° and lights a

warning signal lamp in the hospital telephone exchange on the upper floor. This circuit is entirely separate from that serving the box, and indicates when and if the temperature rises to 50°. This warning system would take care of some such possibility as the refrigerator door being accidentally left open.

Scientific study has disclosed that blood retains its efficacy longest when stored at 40° temperature. Scientists say it is good for transfusion for about two weeks after storage. If not used in that time, the plasma is drawn off for further storage, and the cells discarded.

Plasma is that part of the blood which remains after the red and white cells have been removed. It constitutes about half the bulk of whole blood, and can be kept for several years without deteriorating. Plasma is effective in transfusions for certain kinds of ailments. It is advantageous in that it does not require matching; that is, the plasma

need not be from the same type of blood as that of the patient.

The Miami Valley Hospital blood bank is one of several installations made by Frigidaire for the hospital under the foundation sponsored by Charles F. Kettering, president of General Motors Research Corp. The blood bank installation was made under the supervision of S. E. Miller and H. B. Hull, research engineers.

Kold-Hold Opens Branch In New York City

NEW YORK CITY—Kold-Hold Mfg. Co. announces the opening of a branch office in New York City under the management of F. A. Haag. The new branch, located at 1819 Broadway, will handle sales, engineering, and service for the eastern seaboard as far south as North Carolina, for the Kold-Hold line of refrigeration plates for trucks, cabinets, fountains, and holding rooms.

Mr. Haag, who previously managed the Kold-Hold company's Chicago office and midwest territory, has devoted the last 11 years to sales and engineering work in refrigeration.

Plans include the appointment of territory men in both Philadelphia and Boston.

Commercial Dealer Cooperates Closely With Independent Grocer Groups To Locate Prospects & Make Sales

ST. LOUIS—Voluntary grocer groups can be a big help to the man selling commercial refrigeration equipment and store fixtures. R. W. Tappmeyer, who runs the Hill distributorship here under the name of Superior Sales Co., knows this from actual experience.

These organized associations of independent food store merchants can do much to smooth the way for sales to their members and provide a constant list of prospects for new equipment, Mr. Tappmeyer has found.

GROUP BUYING POWER

These voluntary groups, which may be either local or national in scope, provide the independent grocer with one means of combatting the mass purchasing power and price advantages enjoyed by the big chains. They operate their own wholesale warehouses for the benefit of their retailer members. They also hold periodic meetings for discussion of local trade conditions and mutual merchandising problems.

The officers of these groups are in a position to know the needs and desires of their members and to offer them advice on practically any phase of their store operations. And the member merchants, for the most part, respect and follow this advice.

ASSISTS SALESMEN

So a good stand-in with the heads of such groups is a valuable asset to the equipment salesman, Mr. Tappmeyer points out. Outstanding installations in a few stores of group members will favorably impress these men and tend to lead them to recommend the same type of equipment and

the same sales firm to other members at every opportunity.

"Perhaps due to the example set by the progressiveness of the larger chain store organizations, the average independent grocer is today looking ahead," Mr. Tappmeyer declares. "Self improvement, a factor which has been long neglected by the small independent grocer, is being recognized by most of these merchants as an essential to continued operation, to say nothing of increased business and profit."

MODERN MARKETS

"For the most part the markets going in now are good markets. They are modern and complete in every detail. This rapidly growing trend provides the perfect opportunity for the man who can convincingly tell a complete market story."

"And now that the food merchandising business itself is becoming revitalized, it is more important than ever that the salesman of commercial refrigeration equipment and other store and market fixtures keep on his toes so that he can keep abreast of—or, better yet, a little ahead of—the business which he hopes to supply."

"To do this, the wide-awake salesman will take advantage of every opportunity to learn all he can about modern store planning, about the pros and cons of complete service and self-service types of operation, and in general to prepare himself to be of real service to his prospects and his customers, as well as to enable himself to tell a complete market story and sell a complete market installation."

'Largest Single Order'

Dairy Finances Installation of 21 Milk Coolers on Farms of Its Milk Producers

SIKESTON, Mo.—When 17 milk coolers—said to be the largest single order ever delivered in the United States—were installed on 17 farms near here in one day, the town "knocked off" to celebrate the event with a banquet.

These 17 coolers, as well as four more installed later, were all financed by the Reiss dairy, and went into 21 of the 23 farms that supply the dairy's milk. The dairy serves about half the population of Sikeston, a town of 8,000; the Government School of Aeronautics; and a large number of stores and restaurants.

The idea of such a "mass installation" first occurred to H. M. Zaricor, superintendent of the Scott-New Madrid-Mississippi Cooperative electric company. About a year ago he talked to J. J. Reiss, operator of the dairy, the largest in this section. Mr. Zaricor stressed the advantages of properly cooling milk at the point of production to improve the quality and prevent milk spoilage.

When an REA farm equipment show came to a nearby town, Mr.

Zaricor, who had talked several times with Mr. Reiss since first making the proposal, persuaded him to attend. He did, saw a milk cooler in action, and was convinced.

Arranging with a local bank to finance the installations, Mr. Reiss decided to offer farmers more for their milk if they installed milk coolers. Seventeen farmers signed up immediately for a blanket order. Four others followed soon thereafter. Of the first 19 milk coolers installed four were of six 10-gallon can capacity, six of four 10-gallon can capacity, and nine of three 10-gallon can capacity.

Mr. Reiss is very well pleased with the results, Mr. Zaricor says. The dairy formerly received milk at atmospheric temperature, but milk arrives now at an average temperature of 38° F. Acid test has been cut from .18% to .11%, resulting in a better quality product. The keeping quality is much better, rejections are fewer, and there has been an improvement in the butterfat quality. Mr. Reiss told Mr. Zaricor.

York's Orders For Year Refrigerated Flower Box With Fluorescent Light Installed By Florist

YORK, Pa.—Orders booked by York Ice Machinery Corp. during the fiscal year ended Sept. 30, 1941 amounted to approximately \$27,200,000. This exceeds last year's bookings by about 63%.

Subject to final audit, the corporation estimates its year end carry-over of uncompleted orders to be about \$10,400,000. This compares with \$3,000,000 at the end of the previous year. Approximately 63% of this year's carry-over is business having high priority rating, involving both refrigeration and air conditioning machinery, plus other work vital to the national defense program.

PITTSBURGH—A new refrigerated stainless-steel flower display box employing fluorescent lighting has been installed in Harold's Flower Shop, 232 Oliver Ave., by engineers for McCray Refrigerator Co. here.

Refrigerated display box, 6 x 4 x 9 feet, powered by ¼-hp. compressor, sports three types of fluorescent lighting (soft white, daylight white, natural white) for separate use when displaying different colors of flowers, each fluorescent unit having separate controls. Mirrors on top of the display box enhance the beauty of the flowers.

There Is No Substitute For Experience

"ALL OUT FOR DEFENSE"

But Not "All Out" of Equipment for Essential Civilian Needs

TWO great obligations face Servel today.

Its first duty is to serve America's direct defense requirements . . . its second, to safeguard civilian health.

In the face of priorities and substitutes, Servel is "delivering the goods" for defense needs and essential civilian needs. And it is doing this without lessening the basic quality of its product.

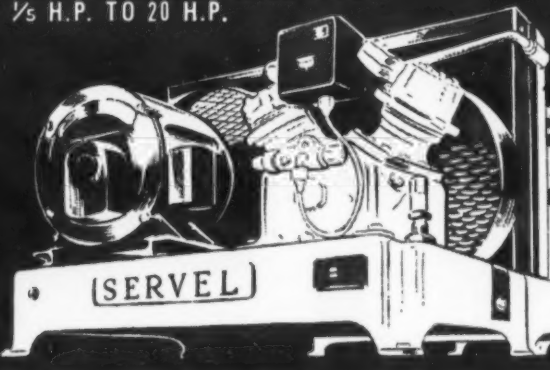
While a great portion of Servel's production facilities are now dedicated to defense, Servel is still in a position to help its loyal customers supply important non-defense requirements.

Servel's big job for 1942 is to protect the food not only of America's armed forces—but also of the "men behind the gun."

BE SURE TO SEE WHAT SERVEL HAS PLANNED FOR 1942

Whatever else you plan to do at the All-Industry Exhibition in Chicago January 12-15 . . . make it a point to visit the Servel display in Space 603 and 605. See for yourself how Servel is meeting today's demands and tomorrow's challenge. If you are not planning to be in Chicago, write for details to Servel, Inc., Electric Refrigeration & Air Conditioning Division, Evansville, Indiana.

OVER 80 STANDARD MODELS—
AIR-COOLED AND WATER-COOLED
½ H.P. TO 20 H.P.



SERVEL

COMMERCIAL REFRIGERATION
and
AIR CONDITIONING

Special 'Defense Activities' Day Planned For All-Industry Show

(Concluded from Page 1, Column 5)
Association, sponsor of the Show, declared that "presentations along this line are more important now than we are at war than ever before."

Tentative plans for the "All-Defense" day program call for a forenoon session at which Henry W. Dinegar, Senior Refrigeration Consultant, OPM, would be the principal speaker. Other talks to be given by president of various industry associations and societies, giving their views on refrigeration in wartime.

Planned for Tuesday noon is a giant industry luncheon at which it is hoped to secure for a speaker one of the highest ranking men in the defense program. The afternoon session would be composed of a symposium of speakers from fields which use refrigeration—such as the meat packing, grocery, dairy, etc.—who would tell just how important and vital refrigeration is to them and their part in the defense effort.

As of the present writing 108 exhibitors are signed for space at the Show, as compared with 112 at about the same time last year, reports C. H. Benson, Imperial Brass Mfg. Co., general chairman of the Show committee. The All-Industry Exhibition will be on two exhibit floors of the Stevens hotel again this year. In addition to filling the exhibition hall, there will be exhibits on the mezzanine and in the Boulevard room, directly above the lobby.

Attendance at last year's Show was 9,286 (registered). In view of the desire of wholesalers, dealers, and service men in the field to get an inkling of what they can expect in the coming year, it is expected that this year's Show will attract

the largest crowds yet seen at an All-Industry Refrigeration and Air Conditioning Exhibition.

The Refrigeration Service Engineers Society and the National Refrigeration Supply Jobbers Association will hold their annual conventions at the Stevens hotel during the Show period. They will arrange their program to allow participation of their members in the "Defense" or "government" day activities planned for Tuesday, Jan. 13.

The American Society of Refrigerating Engineers is planning a meeting in conjunction with the Show, although the exact nature of it is not known yet. However, at the annual meeting of the society last week in St. Louis, Dr. William R. Hainsworth, vice president, Servel, Inc. and new president of the A.S.R.E., said that plans were being laid for a meeting on frozen foods.

Exhibition schedule for the All-Industry Exhibition will be as follows:

Opens	Closes
10 a.m.—Monday, Jan. 12	10 p.m.
10 a.m.—Tuesday, Jan. 13	6 p.m.
10 a.m.—Wednesday, Jan. 14	10 p.m.
10 a.m.—Thursday, Jan. 15	4 p.m.

All-Industry Banquet
6:30 p.m. Tuesday, Jan. 13

Strict enforcement of exhibition rules will be followed this year, declares R. M. McClure, exhibition manager. No canvassing, solicitation of business or conferences in the interest of business, except by exhibiting firms, is allowed. All aisles must be kept clear of exhibits; and interviews, demonstrations, distribu-

tion of literature, etc. must be made inside of the exhibitors booth. No exhibitor can share his booth with any other potential exhibitor, or sub-lease it.

Registration booth for the Exhibition will probably again be located at the main entrance of the lobby floor of the Stevens hotel (Michigan Ave. entrance) at the foot of the stairs which is the entrance to the mezzanine floor displays.

All representatives of exhibitor companies will be registered in advance—and all guests will be urged to obtain and fill out their registration cards before they reach the registration booth—where possible. Admission to the Exhibition halls will be by badge only.

Other members of the Show committee in addition to Chairman Benson are J. W. Hatch, Bush Mfg. Co.; W. D. Keefe, Fedders Mfg. Co.; R. H. Luscombe, Penn Electric Switch Co.; R. M. Van Vleet, Cutler-Hammer, Inc.; and R. M. McClure, Rema executive secretary.

Plates Used In Biggest Ice Cream Transport

LOS ANGELES—Capable of holding 4,400 gallons of ice cream, a new truck, said to be the world's largest ice cream truck, has been put in service by the Ritz Ice Cream Co. here on a daily route covering several hundred miles.

The truck, equipped with Kold-Hold refrigerating plates, delivers ice cream to Ritz branches, traveling along the Ridge route to Bakersfield, Fresno, and Stockton. Temperature is held to 35° below zero.

"Our savings by the installation of these plates have been so great that the entire cost of the plates will be paid for in a short period of time," said L. Bronstein, Ritz president.



E. A. VALLEE
President of Rema



R. H. LUSCOMBE
Committee Member



J. W. HATCH
Committee Member



W. D. KEEFE
Committee Member

Your Support

—for the FOURTH ALL-INDUSTRY REFRIGERATION and AIR CONDITIONING EXHIBITION

—is needed!

WE believe everyone in the Refrigeration and Air Conditioning Industry, whether service man or user—whether manufacturer or jobber—should make every effort to attend the Fourth All-Industry Exhibition, January 12 to 15, 1942 at the Stevens Hotel, Chicago.

The Industry faces many difficult problems for 1942—you will face many equally serious and troublesome problems during the year. And the way for all of us to solve them is to face these problems together.

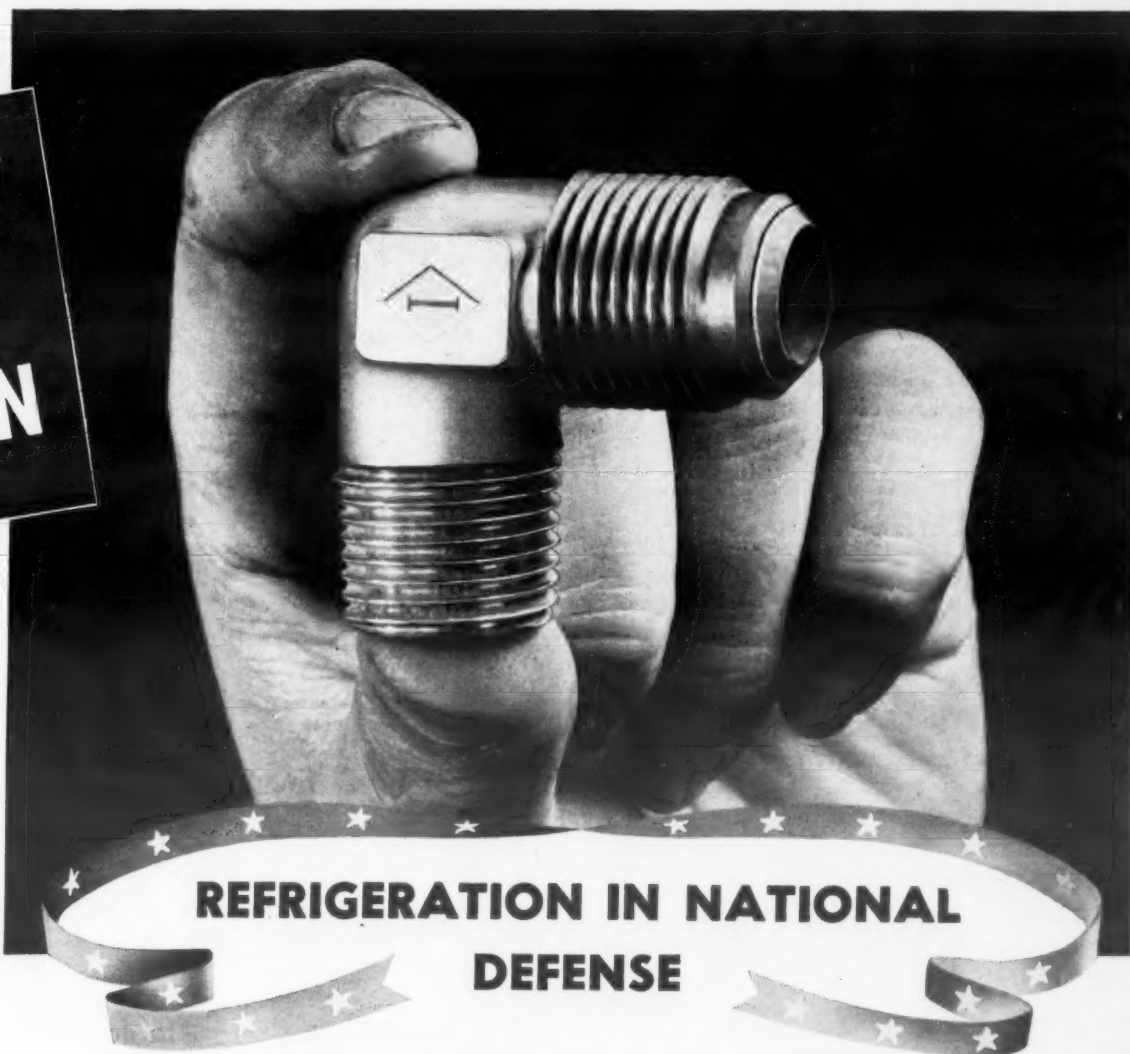
When you come to the Show we cordially invite you to visit the Imperial exhibit at Booths 502 to 506. There at first hand we can discuss your problems in-so-far as they relate to items that are essential in the handling of new installations and the maintenance and repair of old jobs.

We hope to see you at the show.

THE IMPERIAL BRASS MFG., CO., 565 S. Racine, Chicago

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STRAINERS • DEHYDRATORS • VALVES • FITTINGS • FLOATS • CHARGING LINES • TOOLS FOR CUTTING, FLARING, BENDING, COILING, PINCH-OFF AND SWEDGING



• Since Refrigeration and Air Conditioning have grown so rapidly in the last decade we hardly realize how extremely important this new Industry is in the life of the nation. Food storage and preservation, whether commercially or in the home, is going to be more important than ever before and both Refrigeration and Air Conditioning are going to play a more important part in get-

ting even greater efficiency out of the workers of Industry.

Even a little Imperial Copper Tube Fitting like the one shown here is playing its part. For, along with many other products in the Imperial line, the operation of plants and systems everywhere is dependent on such accessories and in the tools needed for both installation and repairs.

Air Conditioning and Refrigeration Products

106 Firms Now Signed Up For Exhibit Space at Fourth All-Industry Show

Refrigeration Will Aid U. S. In Program For Stepping Up of Farm Production

WASHINGTON, D. C.—Greatly increased production of several commodities which rely upon refrigeration for proper processing and preservation are called for under the program recently announced by Secretary of Agriculture Wickard, which sets production goals for all essential farm commodities.

The program calls for increases ranging from 7 to 14% in such products as milk, eggs, chickens, hogs, beef, and veal. Soybean production is to be increased 26%, and peanuts 83%. Wheat acreage, however, is to be cut between 13 and 21%, and barley will be cut from 2 to 4%. Programs for most other crops call for about the same output in 1942 as in 1941.

With the supply of farm labor further depleted by increased Army

and industrial demands, increasing emphasis on mechanical equipment will be necessary if the program is to be carried out successfully. Already the shortage of farm labor is being felt, with a decline of about 10% noted for the country as a whole, and shortages of from 30 to 40% reported in some farm areas near industrial sections.

As more women and girls in farm families are "drafted" for work formerly done by the men, an increasing necessity for labor-saving appliances such as refrigerators, ranges, and laundry equipment also will doubtless become evident, since with everybody in the home working longer hours, there will be less time available for normal household duties which normally occupy much of the farm housewife's time.

Refrigeration Dries & Re-Heats Air In New Bomb Shelter Unit

STOCKHOLM, Sweden—Building of bomb-proof shelters and storage rooms during the present war has given technicians many problems to solve, one of which has been the question of how to keep the air in rooms blasted out in rock sufficiently dry to prevent condensation on walls and goods stored therein.

The most common method previously used has been to heat and ventilate the rooms. A new method involving considerably lower operating and maintaining costs has been developed by the well known Swedish manufacturer of air conditioning and drying equipment, A.B. Svenska Flaktfabriken of Stockholm.

In the new dehumidifying unit, moisture is extracted from the air through condensation on cold metal surfaces. The surfaces are cooled through a refrigerating compressor, the condenser of which is used for reheating the air. The refrigerator, fans, coils, electric equipment, and automatic controls are all built into a compact casing which is easy to handle and install in any locality.

Where the rooms are intended also as bomb-proof shelters for people, the unit can be used also for ventilating purposes.

List of Exhibitors as of Nov. 28, 1941

Acme Industries, Inc., Jackson, Mich.	602
Air-Maze Corp., Cleveland, Ohio	810
Airtemp Div., Chrysler Corp., Dayton, Ohio	412-414
Alco Valve Co., St. Louis, Mo.	107-109
All-Steel-Equip Co., Inc., Aurora, Ill.	908
Harry Alter Co., Chicago, Ill.	204-206
Aluminum Co. of America, Pittsburgh, Pa.	121
American Brass Co., Waterbury, Conn.	613
American Injector Co., Detroit, Mich.	320
Anemostat Corp. of America, New York, N. Y.	823
Angier Corp.	905
Ansul Chemical Co., Marinette, Wis.	5-6
Armstrong Cork Co., Lancaster, Pa.	1006
Automatic Products Co., Milwaukee, Wis.	315-317
Black-Sivalls & Bryson, Inc., Kansas City, Mo.	1001
Bonney Forge & Tool Works, Allentown, Pa.	209-211
Brunner Mfg. Co., Utica, N. Y.	114-116
Bush Mfg. Co., Hartford, Conn.	205-207
Business News Publishing Co., Detroit, Mich.	3-4
Carrier Corp., Syracuse, N. Y.	612-14-16
Century Electric Co., St. Louis, Mo.	815
Chicago-Wilcox Mfg. Co., Chicago, Ill.	106
B. H. Clark Co., DeKalb, Ill.	620
Convention Binder Service, Chicago, Ill.	921
Copeland Refrigeration Corp., Sidney, Ohio	402-4-6
Curtis Refrigerating Machine Co., St. Louis, Mo.	203
Cutler-Hammer, Inc., Milwaukee, Wis.	513-515
Davison Chemical Corp., Baltimore, Md.	708-709
Day & Night Mfg. Co., Los Angeles, Calif.	821
Dayton Rubber Mfg. Co., Dayton, Ohio	101-103
Deepfreeze Div., Motor Products Co., North Chicago, Ill.	706-707
Detroit Lubricator Co., Detroit, Mich.	301-3-5
Dole Refrigerating Co., Chicago, Ill.	510-512
E. I. du Pont de Nemours & Co., Inc., Wilmington, Del.	314-16-18
Durabilt Steel Locker Co., Aurora, Ill.	705
Electromatic Corp., Chicago, Ill.	703
Emery Thompson Machine & Supply Co., New York, N. Y.	803-5-7
Fairbanks, Morse & Co., Chicago, Ill.	125-701
Fedders Mfg. Co., Buffalo, N. Y.	401-3-5
Gale Products, Galesburg, Ill.	808
Gates Rubber Co., Denver, Colo.	910
General Electric Co., Air Conditioning & Commercial Refrigeration Dept., Bloomfield, N. J.	307-9-11-13
General Electric Co., Motor Div., Schenectady, N. Y.	607-9-11
L. H. Gilmer Co., Tacony, Philadelphia, Pa.	216
Grand Rapids Brass Co., Grand Rapids, Mich.	811
W. A. Hammond Drierite Co., Yellow Springs, Ohio	105
Heating & Ventilating, New York, N. Y.	202
Henry Valve Co., Inc., Chicago, Ill.	113-115
Howe Ice Machine Co., Chicago, Ill.	909
Ideal Beer Cooler Co., St. Louis, Mo.	617
Imperial Brass Mfg. Co., Chicago, Ill.	502-4-6
Jarrow Products Co., Chicago, Ill.	111
Justrite Mfg. Co., Chicago, Ill.	624
Kerotest Mfg. Co., Pittsburgh, Pa.	213-215
Kold-Hold Mfg. Co., Lansing, Mich.	
C. F. Leaf Co.	918
Linde Air Products Co., New York, N. Y.	123
Marlo Coil Co., St. Louis, Mo.	501
Jas. P. Marsh Corp., Chicago, Ill.	416-18
Master Refrigerated Locker Systems, Inc., Sioux City, Iowa	201
McCord Radiator & Mfg. Co., Detroit, Mich.	516-518
McIntire Connector Co., Newark, N. J.	208
Mills Novelty Co., Chicago, Ill.	302-4-6
Minneapolis-Honeywell Regulator Co., Minneapolis, Minn.	218-220
Modern Equipment Corp., Defiance, Ohio	308-310-407-409
Mueller Brass Co., Port Huron, Mich.	110-112
Nickerson & Collins Co., Chicago, Ill.	1
Northern Indiana Brass Co., Elkhart, Ind.	312
Pacific Lumber Co., San Francisco, Calif.	907
Peerless of America, Inc., Marion, Ind.	408-410
Penn Electric Switch Co., Goshen, Ind.	210-212
Perfection Refrigeration Parts Co., Harvey, Ill.	816
Polar Hardware Co., Chicago, Ill.	7
Portable Elevator Mfg. Co., Bloomington, Ill.	411
Quick Frozen Foods, New York, N. Y.	622
Quillen Brothers Refrigerator Co., Indianapolis, Ind.	920-923
Ranco, Inc., Columbus, Ohio	2
Refrigeration Appliances, Inc., Chicago, Ill.	809
Refrigerating Engineering, New York, N. Y.	601
Reynolds Electric Co.	902
Sanitary Refrigerator Co., Fond du Lac, Wis.	702
Servel, Inc., Evansville, Ind.	603-605
Spoehrer-Lange Co., St. Louis, Mo.	503
Square D Co., Detroit, Mich.	507-509
Stangard-Dickerson Corp., Newark, N. J.	619
Superior Valve & Fittings Co., Pittsburgh, Pa.	514
Taylor Freezer Corp., Beloit, Wis.	817-819
Tecumseh Products Co., Tecumseh, Mich.	117-119
Temprite Products Corp., Detroit, Mich.	508
Texas Co., New York, N. Y.	912
Tuthill Pump Co., Chicago, Ill.	104
Tyler Fixture Corp., Niles, Mich.	520
United Refrigerator Mfg. Co., Inc., St. Paul, Minn.	801
Universal Cooler Corp., Marion, Ohio	812-814
Universal Zonolite, Chicago, Ill.	610
Utilities Engineering Institute, Chicago, Ill.	108
Victor Mfg. & Gasket Co., Chicago, Ill.	505
Victor Products Corp., Hagerstown, Md.	704
Virginia Smelting Co., West Norfolk, Va.	511
J. H. H. Voss Co., New York, N. Y.	102
Wagner Electric Corp., St. Louis, Mo.	214
Weatherhead Co., Cleveland, Ohio	413-15-17
Westinghouse Electric & Mfg. Co., Mansfield, Ohio	802-4-6
White-Rodgers Electric Co., St. Louis, Mo.	517-519
Williams Oil-O-Matic Heating Corp., Bloomington, Ill.	419
Wolverine Tube Co., Detroit, Mich.	319
X-L Refrigerating Co., Chicago, Ill.	618

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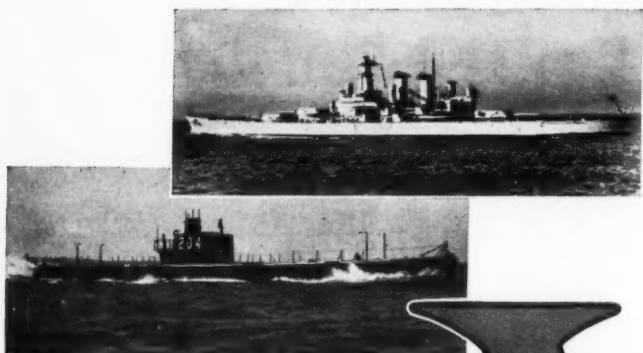
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EQUALLY VITAL FOR VICTORY!

National Defense

Modern Refrigeration



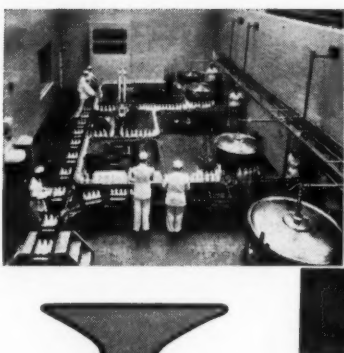
The Armed Forces of the United States

Alco Thermo Valves and other Alco Refrigerant Controls are widely used by the United States Navy. In surface vessels and in submarines, now at sea or in the process of construction, Alco Valves are playing an active part in the defense of America.

Alco Valves assure dependable control of the refrigeration and air conditioning systems of the United States fleet—a vital factor in the efficiency of our fighting ships and in the welfare of their crews.

In bases and cantonments of the Army too, Alco Refrigerant Controls have the important job of maintaining accurate control of the refrigeration, cooling and freezing of foodstuffs for the Army's personnel.

Alco is proud of the opportunity to serve our country in this manner. Much of our present production is now being utilized directly by the armed forces of America.



Civilian Requirements Are No Less Important

Certainly few aspects of our national defense are more important than the maintenance of the health and welfare of our people—in fact, refrigeration is our national defense against food waste and food spoilage that endangers health.

The preservation of America's food supply depends upon proper refrigeration facilities. The transportation, processing and storage of the nation's food must rely upon modern mechanical refrigeration.

Today, more refrigeration is urgently needed. Increased civilian demand for perishable foods has resulted in the construction of new food stores to serve the shifting population of workers on defense projects.

Old, obsolete refrigeration systems are in need of replacement. The demand is here now, and it is urgent.

For years, the development of Alco Refrigerant Controls and their record of accuracy and dependability has been an important factor in the progress of the commercial refrigeration industry. Today Alco joins with this industry in emphasizing the importance of commercial refrigeration as a vital part of our defense effort.



ALCO VALVE COMPANY

2620 Big Bend Blvd., St. Louis, Missouri

NEW YORK • CHICAGO • SAN FRANCISCO • LOS ANGELES • SEATTLE



Engineered Refrigerant Controls

THE STANDARD OF THE INDUSTRY

Refrigerator Manufacturers Ordered By Gov't To Slash Production 30 to 52% For Months of January and February

(Concluded from Page 1)

production level, it is necessary to increase the rate of curtailment in the first two months of 1942.

As the result of "certain inequities arising from the original program," the base period system is revised under the extension so that companies may choose between two periods.

The first is identical to that established in the original order—average monthly factory sales for the 12 months ended June 30, 1941. The second is arrived at in this manner: the average of the percentage of a single firm's sales compared to total industry sales during each of the fiscal years ended June 30, 1939, 1940, and 1941, will be applied against total industry sales during the 12 months ended June 30, 1941. The resultant figure will furnish the sales base on which curtailment is calculated for companies choosing this method. This alternative base period is designed to afford relief for companies whose sales during the 12 months ended June 30, 1941, were adversely affected by unusual production difficulties.

Under the extension of the program, Class A companies, whose average monthly sales during the selected base period were 16,000 units or more, will have their production cut 52% during January and February. Class B firms, whose average sales ranged from 5,000 to 16,000 units, will be cut 40%, and Class C companies, whose average was less than 5,000 units, will be reduced by 30%.

The rate of curtailment from Aug. 1 to Dec. 31 was: Class A, 45%; Class B, 37%; and Class C, 29%.

A system also is established under the extension to permit companies to borrow from their January and February quotas in order to keep operating at a fairly high level during the remainder of this year.

TEXT OF ORDER

Text of the order follows:

In accordance with the provisions of 989.1 (General Limitation Order L-5) which the following order supplements, it is hereby ordered that: 989.2 Supplementary General Limitation Order L-5-a—

(a) January and February Restrictions. During the two months period commencing Jan. 1, 1942, and ending Feb. 28, 1942,

(1) Except as provided in paragraph 4, no Class A manufacturer shall produce more domestic mechanical refrigerators per month than the greater of the following two limits:

(i) 9,600 such refrigerators, or
(ii) 48% of the monthly average of his factory sales of such refrigerators for the 12 months ending June 30, 1941.

(2) Except as provided in paragraph 4, no Class B manufacturer shall produce more domestic mechanical refrigerators per month than the greater of the following

two limits:

(i) 3,500 such refrigerators, or
(ii) 60% of the monthly average of his factory sales of such refrigerators for the 12 months ending June 30, 1941.

(3) Except as provided in paragraph 4, no Class C manufacturer shall produce more domestic mechanical refrigerators per month than 70% of the monthly average of his factory sales of such refrigerators for the 12 months ending June 30, 1941.

(4) In lieu of determining his quota under paragraph (1), (2), or (3), any Class "A," "B," or "C" manufacturer who so elects may determine his January or February quota by applying the above-mentioned percentages (48% for Class "A," 60% for Class "B," 70% for Class "C") to a base period figure determined as follows: The manufacturer shall ascertain the percentage of Factory Sales for the entire domestic mechanical refrigerator industry accounted for by him during the 12 months ending June 30, 1941; during the 12 months ending June 30, 1940; and during the 12 months ending June 30, 1939. (Factory Sales for the entire domestic mechanical refrigerator industry for the 12 months ending June 30, 1941, were 3,702,594; for the 12 months ending June 30, 1940, 2,656,156; for the 12 months ending June 30, 1939, 2,026,840.) The three percentage figures so arrived at shall then be averaged. The average percentage thus determined shall be multiplied by the monthly average of Factory Sales for the entire domestic mechanical refrigerator industry for the 12 months ending June 30, 1941. The resultant figure is the base period figure for the individual manufacturer.

EXCEEDING QUOTA

(b) Advanced Use of Quota. Manufacturers may exceed production quotas of domestic mechanical refrigerators for the five months' period from Aug. 1 to Dec. 31 and for the month of January under the following conditions and in accordance with the following terms:

(1) During the month of November, any manufacturer whose unproduced remaining quota, as of Nov. 1, is less than 10% of his total quota for such five months' period may increase his production for November to an amount equal to 10% of his quota for such five months' period provided he reduces the sum of his quotas for January and February by an amount equal to the amount of such increase.

(2) During the month of December, any manufacturer whose unproduced remaining quota, as of Dec. 1, is less than 10% of his total quota for such five months' period may increase his production for December to an amount equal to 10% of his quota for such five months' period provided he reduces the sum of his quotas for January and February by

an amount equal to the amount of such increase.

(3) During the month of January, any manufacturer whose unproduced January quota, after reductions corresponding to increases in quotas made under paragraphs (1) or (2) hereof, is less than 50% of his total quota for January, as set forth in section (a) hereof, may increase his production for January to an amount equal to 50% of his quota for such month, provided he reduces his February quota by an amount equal to the amount of such increase.

This order shall take effect immediately.

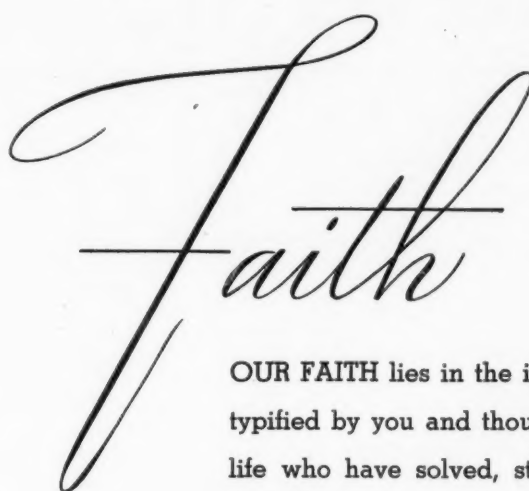
OPM Exhibits Products For Sub-Contractors

DETROIT—The Detroit district office of the OPM Division of Contract Distribution has opened an exhibit in room 207, Boulevard building, 7310 Woodward Ave., where prospective sub-contractors may inspect displays of products on which such contracts are sought and get all necessary information. The exhibit is open daily from 8:30 a.m. to 5 p.m.

Instalment Sales Drop 35% In Buffalo

BUFFALO—Sales of electrical appliances on time payment plans have fallen off 30 to 35% in the last 60 days, it was reported by companies in Buffalo doing the bulk of the business in "instalment paper." Current volume is about equal to last year, however.

Government restrictions on instalment buying have had something to do with the decline, appliance officials said.



OUR FAITH lies in the indomitable nature of Man . . . typified by you and thousands of others in all walks of life who have solved, step by step, the most baffling problems in the world.

WHEN YOU REALIZE that in hardly more than a century Man has harnessed steam, combustible fuels and electricity to do his will . . . that he flies nearly eight miles in the air, travels fathoms under the sea, flings his voice around the world in an instant, predicts to the second, minute and day when an eclipse will occur 20,000 years hence, weighs the very earth on which he stands, turns night into day with a hair-fine filament and freezes by heating . . . then surely your problems of today are within the realm of mastery.

WITH US, AS WITH YOU, it is shortage of manpower and materials that makes the going tough . . . but we are finding answers to problems that at first appeared insurmountable.

SUBSTITUTES may replace some familiar materials out of necessity . . . design changes may result . . . but Progress has not stopped at Kerotest.

KEROTEST VALVES AND FITTINGS, being produced as rapidly as possible, are the result of progressive designing and the well-chosen use of available materials that still maintain the same accuracy, dependability and serviceability you have always known as the hallmark of Kerotest products.

OUR FAITH has proved well-placed in Man . . . who unfailingly accomplishes the seemingly impossible. Our faith is rewarded by the continued, even though somewhat limited, production of top quality Kerotest Valves and Fittings in the face of most adverse supply conditions.

SHARE WITH US a similar faith in dealing with your own problems and look to Kerotest, as always, for the dependability and acknowledged economy of genuine Kerotest Valves and Fittings.

Visit the
CHICAGO ALL-INDUSTRY EXHIBITION NEXT MONTH
—KEROTEST WILL BE THERE . . . AS USUAL.

KEROTEST MANUFACTURING COMPANY
PITTSBURGH · PENNSYLVANIA

J. B. Staecher
General Sales Manager

MANUFACTURERS OF TOP QUALITY VALVES AND FITTINGS FOR THE REFRIGERATION AND AIR CONDITIONING INDUSTRY

N.Y. Edison Sounds Dealers on Service 'Cooperative' After Dropping 'Plan'

NEW YORK CITY—Although it apparently has abandoned, at least for the time being, its original plan for an appliance super-servicing organization in this area, New York Edison still is very much interested in some cooperative arrangement which would "constructively promote appliance servicing and repairs, especially during the emergency period, for the benefit of cooperating dealers and to protect customers in the matter of securing dependable and economical appliance maintenance and repair service."

The quotation above is from a questionnaire sent to dealers in the metropolitan area by E. F. Jeffe, Edison vice president, seeking a roundup of opinion on the appliance servicing situation. Replies to the questionnaire are now being tabulated.

In sounding out dealer reaction to a cooperative servicing program, "yes" or "no" answers were requested to the following questions:

"Do you now service and repair small appliances? Do you now service and repair major appliances? If your answer to either of these questions is "no," would you be willing to establish service and repairs of this equipment under a cooperative plan?"

"Would you be willing to have your appliance service and repair employees attend instruction classes to be conducted by the Consolidated Edison System Companies without cost to you?"

"If a cooperative service and repair plan were established under the sponsorship of the Consolidated Edison System Companies for cooperating dealers, would you be willing to abide by decisions of a committee composed of representatives of the plan with reference to customer complaints? . . . Would you be willing to abide by reasonable rules and regulations set up to protect customers so that they might secure dependable and economical service?"

ASRE Debates Problems of Aid To Gov't, Broadened Membership

(Concluded from Page 1, Column 2) the various purchasing divisions of the government.

The council also will apparently set up a committee to study and report on the relations between the A.S.R.E. and other industry associations and groups.

Dr. William R. Hainsworth of New York City, vice president of Servel, Inc., in charge of engineering, and national authority in the field of refrigeration research, was elected president of the society.

Dr. Hainsworth, who has been engaged in refrigeration research more than 20 years, succeeds L. L. Lewis, vice president of Carrier Corp.

Dr. Hainsworth has pioneered engineering developments in refrigeration, and in other fields, notably phototelegraphy. His chief hobby is mountain climbing, and he is one of the chief exponents of this dangerous pastime in the United States.

Among his past activities in the society Dr. Hainsworth's most recent contribution was his function as chairman of the membership committee. In that capacity he made a report last week on a survey of "The Field of Membership for the A.S.R.E."

"Some members of the society have felt that too conservative a policy has prevailed in the past, and that the present enrollment of 1,825 could be greatly increased," reported

Dr. Hainsworth. "Others think that the present size is about right, and that future effort should be put rather on making the membership policy more selective."

"No attempt was made to arrive at the answer to such broad questions, but merely to get facts which may enable those of their opinion to state their case more intelligently."

A study was made of the "prospective list" (eligible non-members) in the Philadelphia area, and after a questionnaire had been sent to this group, the following conclusions were reached:

"When one inquires into what growth of membership might result from some other policy, his own opinion is likely to become the dominant factor. We can only list some of the means that have been suggested toward achieving a larger membership:

"Organization of new sections.
"More outlay for solicitation.
"Special inducements to men outside sections.

"Consolidation of membership into one grade.

"Change of name to make it more inviting to non-engineers.

"Admission of service men, domestic refrigerator salesmen, and others, who are now in effect excluded.

"Consolidation with other societies.

"Since this is the realm of opinion, we will submit the following comments, not as conclusions in this

investigation, but as the opinion of the committee: In general, we find that the Philadelphia Section has appealed to the local refrigeration trades as well as any society, however organized and entitled, might reasonably be expected to. This is not to deny the room for improvement, but to point out that the improvement may well come first by building up sections to this level, under better administration from the national office. This can be done without radical change of policy.

"1. The society has appealed about equally to men of various skills, functions, and degrees of responsibility—executive, technical, and practical.

"2. The society has appealed about equally to the branches of the industry engaged in manufacture and distribution of refrigerating and air conditioning machinery, and its related equipment, as well as to commercial refrigeration, the parts business and the like, and to the service field.

"3. The society has appealed relatively less to that branch of the industry devoted to operation of refrigerating plants, such as breweries, cold storage, dairies, chemical plants, and the like.

"4. A section which uniformly conducts meetings of outstanding interest and maintains an aggressive membership policy may expect to enroll, at any one time, about as many members as there are refrigeration firms in its vicinity. This may be expected to amount to about one half the total number of eligible individuals in the vicinity.

"5. The 'market' for further memberships for such a section divides in (a) first memberships in companies still not represented, and (b)

second or third memberships in companies already on the list. It apparently requires about an equal effort to 'sell' either group.

"6. If all the sections in the society succeeded to this degree, we might expect an increase of membership from the present 1,825 to about 2,500.

"7. The probable maximum to be attained under the present policy in periods of good business in the future is about 3,000.

"8. The opinion of the society expressed by non-members tends to show that a good opinion of the society is now held by a substantial portion.

"9. No uniformity of classification, or of personal attitudes, has been found in the unsold market sufficient to warrant the assumption that more than a fraction of those now regarded as prospects could be brought in by any change of policy, however sweeping."

Society May Function As Consultant To U.S.

Debated in the forum on government specifications were the questions of whether or not the American Society of Refrigerating Engineers should provide a committee to advise the government on specifications of refrigeration equipment which the government purchases, and if the government agencies would welcome the assistance of such a committee.

A. G. Loeffel, Marlo Coil Co., who led the discussion, pointed out that certain specifications had been found to be not up to date, and that progress on others had been retarded by a conflict in interests. He proposed that a committee representing the A.S.R.E. would be representative of a neutral body and the industry's best engineering brainpower.

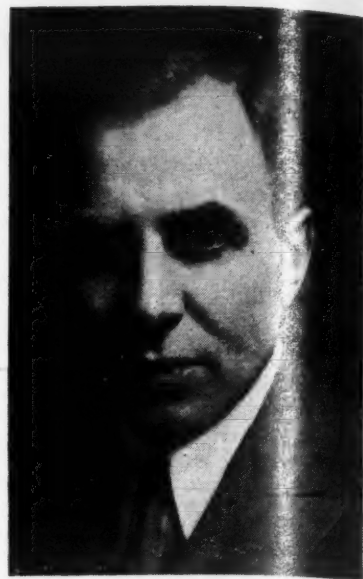
C. W. Shearman of the purchasing division, OPM, pointed out that an industry committee had functioned in bringing out the Army cold storage requirements specifications, but admitted that no official industry group or society had been consulted in the selection of the men.

Mr. Shearman indicated that the government agencies would probably welcome the aid of such a committee, and that full hearing would be given to any changes they might propose in government specifications.

One solution to the problem suggested by Dr. Hainsworth was for the formation of a "government relations committee" of the society which could give the proper time to a study of the problems involved and make proper recommendations.

The criticism that committees to work on government problems were "getting too many presidents, vice presidents, and general managers on them—men who have neither the time nor the everyday working knowledge of engineering problems" was voiced by Charles Neeson, Airtemp engineer. He believes that such a committee as proposed would be effective only if composed of men actively engaged in meeting everyday refrigeration engineering problems.

Leads Engineers



DR. W. R. HAINSWORTH
Newly inaugurated president of the A.S.R.E.

In buying refrigeration machines and equipment, said Mr. Shearman, the government is interested in three main points:

1. Purchase price.
2. Maintenance.
3. Salvage value.

"This third factor is rather important," said Mr. Shearman. "For instance, if the Army buys a refrigerating plant and figures to use it perhaps only 5 years, it is interested in knowing whether or not there will be a market for it then."

The cold storage plant specifications were drawn up so that either "Freon-12" or ammonia could be used, the OPM man said.

"Remember, as far as the government purchasing is concerned, there is no 'shortage' of 'Freon' or ammonia," he added.

Those who want copies of the cold storage plant specifications and bid sheets on Army refrigeration plant jobs may get them by addressing Division of Purchase, Office of Production Management, 2077 Social Security Building, Independence & Fourth Sts., Washington, D. C.

"The War Department likes to plan 4 or 5 years ahead, so naturally they are likely to get behind the times," stated Andre Merle, refrigeration engineer attached to the War Department. "This explains why the Army might not seem completely up to date on such things as frozen foods and dietary changes, as well as some mechanical developments."

"And when the emergency came—when men had to be fed and housed and clothed in a hurry—the Army didn't have time to sit down and leisurely contemplate all the changes and possible errors. They had a job to do and they went ahead and did it."

"If you find a specification that doesn't seem fair, that doesn't give the minimum number of bidders a chance, and that doesn't conform to modern trade practices, file a telegraphic protest before the bids are in. File it with the Quartermasters department."

National Defense NEEDS Public Health . .

Come to the Show . . .

The 1942 Show will demonstrate how Refrigeration Protects the Fruits of Victory



Booths 315-317

This year you have TWO extremely important reasons for attending our Industry's greatest Shows — important subjects that will closely effect your business and your profits throughout the coming year.

One

New Products, New Methods that aid you to . . .

DEFENSE CONSERVATION

Two

Product-Improvements that increase operating efficiency—and help you to higher profits.

★ Progressive Service Engineers Use and Recommend—and Aggressive Jobbers Stock and Talk A-P Products.



At the A-P Booths 315-317 . . . we'd like to show you what we've done to conserve for National Defense while effecting important improvements in A-P Products. You'll find this booth interesting and profitable. We'll enjoy meeting our friends again at the Refrigeration Industry's annual get-together.

AUTOMATIC PRODUCTS COMPANY
2450 NORTH THIRTY-SECOND STREET
MILWAUKEE WISCONSIN

DEPENDABLE
Refrigerant Valves

Public Health NEEDS Refrigeration

Serving the
REFRIGERATION
INDUSTRY



HYDRON
METALLIC BELLOWS
produced
hydraulically
BY

CLIFFORD MANUFACTURING CO.

564 E. FIRST STREET, BOSTON
BOSTON CHICAGO DETROIT LOS ANGELES
PRODUCERS OF BELLOWS EXCLUSIVELY
SERVING AUTOMATIC CONTROL MANUFACTURERS

COMPLETE ENGINEERING SERVICE

OPM Field Man 'Amazed' At Size and Scope of Refrigeration Field as Outlined in Letter He Requested From TECORD

HOUSTON, Tex.—In line with the established policy of the Temporary Educational Committee of Refrigeration Distributors (TECORD) to sell the story of refrigeration's essential nature as strongly as possible, Standard Brass & Mfg. Co., Houston jobber, recently addressed a letter containing the facts and figures of this story to George L. Noble, Jr., district field priorities director for OPM in the Houston area.

The letter was written at Mr. Noble's own request, after he had professed to be amazed at the size and scope of the refrigeration industry and had expressed a desire to see a written statement of the industry's case.

The letter was written on Standard Brass & Mfg. Co. stationery but was signed by T. L. Burroughs of Burroughs Service Co. and C. H. Belt of Commercial Refrigeration Co. in addition to Allan L. Cody for Standard Brass.

After sending Mr. Noble this letter, Standard Brass arranged to have him address an open meeting of refrigeration men at the Ben Milam hotel. At this meeting Mr. Noble explained existing and future restrictions applying to the refrigeration industry.

Announcement of this meeting, which was mailed to all refrigeration men in the territory served by Standard Brass, was headed by this eye-opening question: "Do you know that government order M-9-C coupled with repair and maintenance order A-10 P-22 may put you out of business after Jan. 1, 1942?"

A copy of the letter sent to Mr. Noble follows. It is an example of what can be done by individual organizations engaged in the refrigeration business in impressing the importance of refrigeration and the refrigeration business upon government representatives.

LETTER DESCRIBES INDUSTRY'S SCOPE

Standard Brass & Mfg. Co.
Wholesale Refrigeration Supply Div.
2018-20 Franklin Ave.
Houston, Texas

Mr. George L. Noble, Jr.
District Manager, Field Priorities Service
Office of Production Management
Houston, Texas

Dear Sir:
At your request we present the following facts in connection with our industry for the purpose of securing repair materials priorities.

The example of meat, dairy, farm, and poultry products consumed by the American public amply illustrates the movement of foodstuffs through channels requiring refrigeration.

1. Producer or processor requiring initial chilling, etc.

2. Wholesaler requiring holding storage.

3. Retailer also requiring holding storage.

4. Consumer's refrigerator, also requiring holding storage.

Preference Rating Order P-22 contains provisions for first—the producer or processor and second—the wholesaler, but third—the retailer and fourth—the consumer—both of whom are entirely essential to the operation of the processor and the wholesaler cannot secure maintenance materials. Neither the processor or wholesaler has adequate facilities for retailing in small quantities to consumers; the retailer cannot supply this service unless his refrigeration equipment is operating to hold his supplies against consumer demand; the consumer cannot use his purchases without great waste unless his own household refrigerator is in operation.

Repair parts are essential to the retailer and consumer since modern boxes are so constructed as to make the use of ice impossible. Further, if ice had to be used for this purpose, new ice plants would have to be built to supply the demand, requiring a much greater consumption of new materials.

Retail refrigeration equipment can be maintained with a minimum of materials as compared with the net result. It has been estimated that the actual cost of restricted materials for the maintenance of all existing domestic, commercial, and air condi-

tioning equipment does not exceed \$1.00 per year per thousand dollars worth of equipment to be maintained. There are in use a great number of so-called open type household refrigerators. The latter can be repaired with a minimum of materials and usually with great speed. Sufficient of these refrigerators are in use to prevent civilian waste if they are maintained.

Further, repair parts priorities would make possible the continued use of millions of dollars worth of previously constructed equipment, our own service and supply industry, and the continued operation of the thousands of retail businesses dependent upon refrigeration for survival.

Specifically, we feel that waste can best be prevented, and existing civilian materials best utilized if you permit us the following privileges:

1. Priorities Ratings for the retailers of all perishable foodstuffs which will permit us to keep their present storage facilities in efficient operating condition to prevent waste of both power and food.

2. Priorities Ratings for the owners of domestic refrigerators so that we may help them to keep their food purchases in edible condition until final consumption.

These privileges would constitute a highly valuable contribution to vital civilian morale, health, and food conservation at a minimum expenditure of materials.

It is necessary to maintain adequate stocks of essential repair material in refrigeration supply jobbers' stocks for instant delivery upon demand; for thus we can prevent waste of all the perishable foodstuffs stored in the equipment at the time of its failure.

We wish to assure you that in this matter we have attempted to be both patriotic and practical and trust that this information may be mutually helpful.

Standard Brass & Mfg. Co.
ALLAN L. CODY
Burroughs Service Co.
T. L. BURROUGHS
Commercial Refrigeration Co.
C. H. BELT

War Production Going On Full-Time Basis

(Concluded from Page 1, Column 4)
concerned with the war effort will come under the 24-hour schedule. This will not mean that plant management will be disrupted, but it will mean that for all practical purposes, all workers in the plant are in the service of the government.

By putting plants on a 24-hour, seven-day schedule, it is believed that much of the unemployment which normally might result from the changeover from domestic to war production will be avoided. Under the plan, the government also will move to provide the raw materials needed to keep the plants in continuous operation.

There will be no shortage of essential materials for war, no matter what may happen to normal domestic production. OPM already has a survey under way to determine raw materials available, and will see that the Army and Navy get first call.

Schimmel Represents Soda Fountain Firm In Three Eastern States

PHILADELPHIA—Samuel Schimmel, representative of Kelvinator in the Near East for several years, has been named district representative for the carbonator division of General Dry Batteries, Inc. He will handle the distribution of the General soda system in the states of Pennsylvania, New Jersey, and Delaware.

Mr. Schimmel's daughter, Mrs. Ruth Schimmel Hoffman, a scientist in the Hebrew University cancer research laboratory in Jerusalem, recently participated in the discovery of an adult animal tissue extract which has healed wounds failing to respond to ordinary treatment, and which is now being used experimentally in several military hospitals. In one case, a complete cure of a leg wound was effected within three weeks.

TEN THOUSAND WORDS MAKE PRETTY PICTURE, TOO

"... great assistance in conserving our 'Freon-12'."

"... and we want to cooperate."

"... in the hands of every customer."

"... 50 copies for discussion at opening of new plant."

"... of great value to each and every service engineer."



"... helping our theatres avoid waste and losses."

"... copy on board each ship we operate."

"... happy to pass out 500 copies at our service schools."

"... show our branches how to save on 'Freon-12'."

TAKE A BOW, refrigeration service engineers. The Chinese Doctor congratulates you on the enthusiastic way you tackle the check-up service plan. It pays to keep your "patients" well . . . instead of just treating them when they're sick. Also, our sincere thanks for your co-operation in conserving "Freon-12."

Keep on plugging this regular check-up service. Thus, you'll be sure of continuous operation for equipment employing "Freon-12." This will keep you in good with your customers. Someday you'll cash in on all the good will . . . with new business.



BEFORE PATIENT COMES DOWN SICK—SELLING CURE IS EASY TRICK!

And keep on preventing needless waste and losses of "Freon-12." This will insure the supply for new equipment. This, in turn, means more business for you.

Let us help you . . .

We know there's no substitute for your own practical experience. And there is literature available on handling of refrigerants. But we have lots of information on the major causes of waste and loss. So we put it all together in a convenient new booklet for you.

It's been mighty popular so far. If you don't have yours yet—as a guide to the profits of a regular check-up service—we'll be glad to send one. Why not write for it today?

TAKE A TIP from the Chinese Doctor—who is paid to keep patients well. This service manual will help you keep your patients thinking along conservation lines.

KINETIC CHEMICALS, INC.
TENTH & MARKET STREETS
WILMINGTON, DELAWARE

CHECK LIST FOR CONSERVATION OF "FREON"

- Do not overcharge system. Weigh a sufficient amount of "Freon" for efficient operation.
- Test system for tightness. Use dry CO₂ or nitrogen rather than "Freon."
- Evacuate shipping cylinders completely. Condense the vapor and purge the refrigerant.
- Do not purge "Freon" into the air. Pump the "Freon" into the receiver or into a clean, dry cylinder for reuse.
- Look for accumulations of oil which have leaked from the systems. They may indicate the presence of a leak.
- Use a Halide lamp or torch to locate leaks. It gives instantaneous reaction to even minute leaks.
- Check systems at these points: Gaskets on the crankcase cylinder, Crankshaft bearing housing, Cylinder head, Stuffing box or shaft seal, Valve stems and pads, All connections (threaded, flared, welded, brazed or soldered), Control devices, Oil separators, Compressor, Condenser, Evaporator, Auxiliary control apparatus, All castings and tubings.

*"Freon" is Kinetic's registered trade-mark for its fluorine refrigerants.

KINETIC
FREON
safe refrigerants

These Men Direct Nation-Wide Activities of Refrigeration Service Engineers Society



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Montreal, Canada
Sergeant-at-Arms



S. B. GARLAND
Worcester, Mass.
Director

R.S.E.S. To Examine Serviceman's Role In Defense At National Convention

(Concluded from Page 1)

eration occupies. It is expected that important information will be presented showing what steps are being taken to provide the industry with a proper allocation of material so that the food preservation program, so vital to the public health and morale, is not impaired.

The R.S.E.S. convention program has been planned to provide members and guests with informative and factual information on developments brought about by the shortage of

critical materials.

Occupying a most important position, the service engineer is expected to keep existing equipment operating at peak performance, in order that new equipment may be released for necessary and essential installations.

On Sunday, Jan. 11, the officers and board of directors and the board of advisors luncheon will be held at 1:30 p.m. at the Stevens hotel.

On Monday, first day of the convention, the annual business of the association will be transacted, with

the reports of officers and committees to be heard. At 1 p.m. the annual secretaries luncheon meeting will be held, at which time visiting secretaries of local chapters will meet with National Secretary H. T. McDermott to discuss plans for future activities of the local chapters.

Tuesday, Jan. 13, the program will be entitled "Refrigeration Defense Day Program." On both Tuesday and Wednesday, the feature which has been so beneficial to the members at previous conventions, "Information Please," will be repeated, and practical service questions will be answered by a "board of experts."

The entire program will fit in with the "Refrigeration Defense Day" theme, with information regarding the handling and procedure of priority orders as relating to the service

man, an address by a governmental official from the Office of Production Management, a movie showing how America is preparing for defense, and an important subject to illustrate how defense has developed new materials for refrigeration use, will "high light" the session.

Tentative program arrangements include an address on taxes, especially the excise tax on refrigeration equipment, and a brief discussion on the merits of a corporation versus a partnership or individual ownership. The afternoon will be devoted to the "All Out Refrigeration Defense Day," in which a mass meeting of manufacturers, service and installation men, and jobbers will hear the speakers from Washington.

Tuesday evening, in conformity with previous conventions, the R.S.E.S. will participate in the All-Industry Banquet.

Wednesday has been set aside as the "Service Problems" session, with the "Information Please" program opening up the meeting and topics of interest pertaining actually to the service and maintenance of equipment to be discussed by prominent speakers in the industry. Concluding the business session will be the reports of the convention committees as well as the election of officers.

The annual R.S.E.S. party, in which the entire industry is invited to participate, is scheduled for Wednesday evening.

Programs are so designed that business sessions are confined to the morning, so that members may have sufficient time to visit the All-Industry Show during the afternoon.

National officers of R.S.E.S. are: president, E. A. Plesskott, St. Louis; first vice president, C. Buschkopf, Beaver Dam, Wis.; second vice president, A. W. Gruber, Ironton, Ohio; secretary, H. T. McDermott, Chicago; treasurer, S. A. Leitner, Kansas City, Mo.; sergeant-at-arms, L. J. Boucher, Montreal, Canada.

Directors include W. W. Allison, Los Angeles; J. L. Driskell, Burley, Idaho; S. B. Garland, Worcester, Mass.; John Kirch, Jr., Pittsburgh; A. D. McGill, Peoria, Ill.; J. B. Shepherd, Winnipeg, Canada; and E. A. Summers, Baton Rouge, La. A. M. Fenwick, Cleveland, is chairman of the international educational and examining board.

Women's educational and entertainment activities in connection with the convention are being planned by a committee appointed by Mrs. C. J. Doyle, Omaha, Neb., president of the R.S.E.S. ladies auxiliary.

Other Directors of the R.S.E.S.



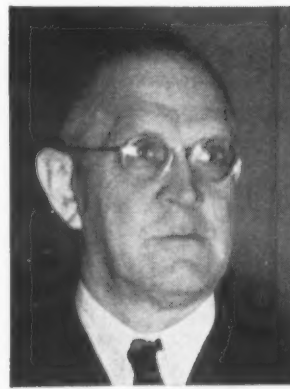
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Los Angeles



A. D. MCGILL
Peoria, Ill.



JOHN KIRCH, JR.
Pittsburgh



E. A. SUMMERS
Baton Rouge, La.



J. L. DRISKELL
Burley, Idaho



J. B. SHEPHERD
Winnipeg, Manitoba

MANPOWER AND MATERIALS KEYS TO NATIONAL DEFENSE -they must be conserved-

Defense requirements must come first. Demands are heavy—will be heavier—and they must be met. Hence, it is a patriotic duty to conserve manpower and materials—the twin keys to National Defense.

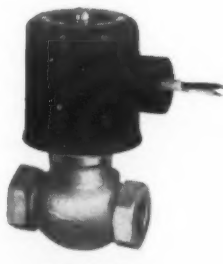
In laying out refrigeration and air conditioning installations, it is necessary to consider these factors. As the army grows—capable service men will be fewer—the answer is equipment that requires minimum service. If equipment is ineffective and has to be replaced, added and unnecessary loads are thrown on production machines needed for turning out military supplies. Additional materials must be used which may be needed elsewhere. Select equipment that won't have to be replaced.

Detroit Refrigeration Valves and Controls have proved their dependability, effectiveness and durability. They make the least possible demands in service and replacements.

Come in and see us when in Chicago
for the Show - - BOOTHS 301-303-305



No. 673
Thermostatic
Expansion Valve



No. 683-3
Solenoid Valve



No. 450 ZL-1
Temperature Control



DETROIT LUBRICATOR COMPANY

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Use **DRIERITE** for Drying
Air
Refrigerants
Industrial Gases

The Most Efficient Drying Agent

DRIERITE, "The Versatile Desiccant," meets all drying requirements in Laboratory and Plant.

DRIERITE is one of the leading driers in the refrigeration industry and is widely used in the drying of air, the industrial gases, and the organic liquids and solvents in the chemical and engineering industries.

DRIERITE is easily and rapidly applied—its performance efficient and economical.

Meet us at the **ALL INDUSTRY REFRIGERATION AND AIR CONDITIONING EXHIBITION—BOOTH 105**, Stevens Hotel, January 12-15th.

W. A. HAMMOND DRIERITE CO., Yellow Springs, Ohio

Tracy-Wells Takes Over Crosley For 29 Ohio Counties

COLUMBUS, Ohio—Tracy-Wells Co., 175 North Front St., has been appointed Crosley distributor in 29 Ohio counties, taking over 10 new counties in addition to the 19 formerly covered by Crosley Distributing Co., factory controlled branch which had been handling the territory since March 1, 1940, when it assumed the franchise of R. C. Bohannon, Inc.

Distribution of Crosley refrigerators and ranges will be handled by Appliance Distributing Co., a Tracy-Wells subsidiary, with display rooms and warehouse facilities at 169 North Ludlow St. Radios, washers, and ironers will be handled by the parent organization, which also distributes ABC washers and ironers and Zenith radios.

Local branch of Crosley Distributing Co. has been taken over by Tracy-Wells as part of the franchise shift, but B. K. Pond, branch manager, will assist the new operation until the end of the year. Several other members of the branch's staff will join the new outlet. Frank Reynolds, radio service manager, will assume the same post at Tracy-Wells, while Paul Kemper will join the appliance sales staff. Albert Yoe will join the refrigerator service department of Appliance Distributing Co.

Arthur Ridgley, general manager of Appliance Distributing, will be in full charge of refrigerator and range merchandising, while John J. Getreu, Tracy-Wells sales manager, will direct sales of radios and laundry equipment, with the appliance department in charge of C. O. Tracy. William T. Tracy is president of the company, and John Castner will continue as buyer.

Sales In the South

Knoxville Sells 105 Units In October

KNOXVILLE, Tenn.—October sales of 105 household electric refrigerators at an average price of \$156 have been reported by Knoxville Electric Power & Water Board.

Commercial refrigerator sales for the month totaled 14 units at an average price of \$202. Seven commercial air conditioning units were reported sold at an average price of \$326.

Household electric range sales in the territory of the Knoxville utility during October totaled 124 units at an average price of \$143, while 53 water heaters were sold at an average price of \$76.

A more complete tabulation of major appliance sales reported for October follows:

Appliance	Unit Sales	Average Price
Household Refrigerators	105	\$156
Ranges	124	143
Water Heaters	53	76
Washers	116	77
Ironers	6	111
Vacuum Cleaners	31	60
Radios	513	35
Dishwashers	1	200
Waste Disposal Units	1	150
Commercial Refrigerators	14	202
Air Conditioning Units	7	326

Virginia October Sales 23% Ahead of 1940

ALEXANDRIA, Va.—October household electric refrigerator sales in the territory of Virginia Public Service Co. totaled 702 units, a gain of 23% over the 540 units reported sold during the same month last year.

Range and water heater sales also were up over 1940 marks, ranges showing a 19% gain to reach 168 units and water heaters jumping 47% to total 70 units.

Refrigerator, range, and water heater sales for the first 10 months of the year showed respective gains of 14%, 21%, and 32% over the corresponding period of last year.

A more complete tabulation of major appliance sales in the utility's territory follows:

Appliance	Oct., 1941	Oct., 1940	10 Mos., 1941	10 Mos., 1940
Refrigerators	702	540	13,515	11,790
Ranges	168	139	1,890	1,493
Water Heaters	70	47	770	517

Sterchi's Opens New Appliance Dept.

CHARLOTTE, N. C.—One of the largest major appliance departments in the South was formally opened here when Sterchi's, furniture retailers, completed a new building at 425 S. Tryon St. recently.

Thomas M. Driskill heads the department, which uses two floors in a new five-story building for appliances.

Radios and refrigerators are shown on the first floor, with a revolving stage for the "refrigerator of the month." The major appliance department proper is located on a mezzanine over the first floor, where sectionalized displays of Frigidaire refrigerators, ranges, and other appliances are shown.

Each section has a demonstration room of its own, where at least one appliance of the type concerned will be kept in operation, thus allowing women to test the washing machine, ranges, or other appliances of her choice in the store.

Future Losses, Rising Cost of Living Worry Retail Store Executives

NEW YORK CITY—Indicative perhaps of what retailers are concerned with and are thinking about today are the answers being received by the National Retail Dry Goods Association as the result of asking retail executives to list the problems they believe will be most formidable in 1942.

These answers will provide a basis for discussion subjects for the thirty-first annual convention of the association, to be held Jan. 12 to 16 at Hotel Pennsylvania here.

The two questions checked most frequently by retailers—77%—are (1) how necessary is it to establish a reserve to cushion future losses, and how can this be accomplished on a scientific basis? and (2) methods of compensating employees in relation to cost of living.

Third topic, which was checked by 72%, was "how can we meet ruinous

inventory deflation after the war?" The question "how can we sell the public on the necessity for curtailment of services such as reduced deliveries, restriction of free gift wrapping, regulation of returns, etc.?" interested 70%.

The next six important topics, according to the retailers' votes (approximately 57%) were as follows: (1) expense control in the face of rising costs, (2) trend toward shorter work week, (3) how much will prices advance in 1942? (4) in what lines are rising prices justified? (5) how far will the government go in the control of retail prices? and (6) restriction of unnecessary customer services.

Many other subjects interest the retail executives, such as, effect of the national emergency on merchandising policies and merchandising under government control of prices.

Essex League Promotes Annual Xmas Luncheon

NEWARK, N. J.—Fourteenth annual Christmas luncheon of the Essex Electrical League is scheduled to be held at 12:30 on Dec. 11 in the Elizabethan Room of the Essex House.

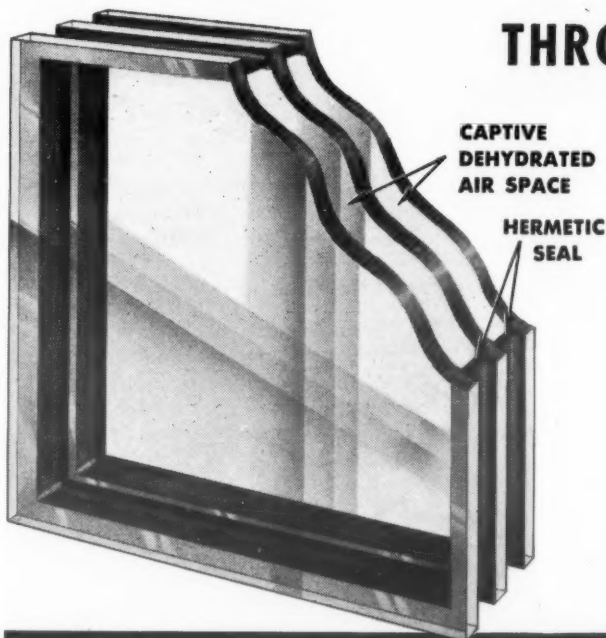
Rev. Dr. Norman Vincent Peale, minister of the Historic Marble Collegiate Church, New York City, will speak. A feature of the program will be the presentation to the people of Newark of a community tree in Military Park.

Ladies are especially invited to this meeting.

Crown Supply Co. Makes Bow In Los Angeles

LOS ANGELES—Crown Refrigeration Supply Co. has been organized by Jack A. Wilson with headquarters at 1309 Arlington Ave. here.

BETTER
SEEING
MEANS
BETTER
SELLING



THROUGH *Thermopane* GLASS

● Shoppers don't carry fog lights. And they won't buy what they can't see through glass fogged up with condensation.

But they never have trouble seeing through Thermopane, the new Libbey-Owens-Ford glass unit for commercial refrigerators. There can be no condensation between panes because there isn't any moisture in the captive air. The air spaces are dehydrated before they are sealed up, and the metal seal keeps moisture from getting back in.

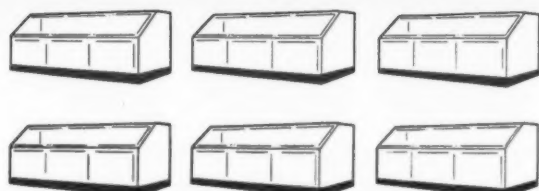
Cleaned CLEAN . . . Before the unit is sealed, every smudge and speck of dirt is cleaned off the inside surfaces of the glass. The seal then keeps even the finest dust from getting in to mar the sparkling clear glass. It is important that this glass is Libbey-Owens-Ford Polished Plate Glass.

Like a 12-inch Brick Wall . . . In one way, a triple Thermopane Glass unit is like 12 inches of brick. Both have about the same insulating value. The efficiency of Thermopane is explained by the absence of moisture in the air space and the absence of any breathing action.

Another Big Advantage . . . Thermopane units are much easier and faster to install than individual panes of glass . . . two other reasons why manufacturers of commercial refrigerators are now using Thermopane in their new cabinets.

GET COMPLETE INFORMATION

For full details about Thermopane Glass and for technical advice on its applications in their cabinets, manufacturers of commercial refrigerators are invited to write Libbey-Owens-Ford Glass Company, Dept. AC1210, Nicholas Building, Toledo, Ohio.



6 CASES CAN BE GLAZED
IN THE TIME IT TAKES
TO DO 1 THE OLD WAY

Where it formerly took six hours to glaze a cabinet in a certain plant, it now takes but one with Thermopane Units. Much time is saved by the elimination of cleaning and polishing between panes. Thermopane is supplied already clean, ready to install.



LIBBEY · OWENS · FORD
Thermopane

The Better Glass for Commercial Refrigerators

Air Conditioning & REFRIGERATION NEWS

Trade Mark registered U. S. Patent Office;
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F. M. COCKRELL, Founder

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DECEMBER 10, 1941

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Refrigeration Will Help Win the War

Let's Go, America!

JAPANESE "Statesmen" must be a passel of idiots. Surrounded by enemies, poor in natural resources, the Japs yet dare to pick a fight with the biggest producer of airplanes and ships in the world.

She asked for it, and now she's going to get it. Right between the eyes. Our navy ought to smack her so hard and so often that she won't recover for a hundred years.

This industry, of course, can be counted upon to redouble its efforts for the national defense. That will include increased speed on armament contracts and subcontracts, and plenty of refrigeration equipment for the big new army and navy cantonments which will be built. Plus, of course, refrigeration for civilian food supplies. Refrigeration is just as important now, of course, as it was a week ago.

PLATFORM FOR WINNING THE WAR

By sticking its head in the lion's mouth (and knocking out a few teeth while there) Japan in the long run may have done us a favor. This action should put a stop to the series of labor disputes and strikes which were slated to hamper our efforts during the coming months.

To win the war, and win it quickly, the NEWS proposes the following platform:

1. Every manufacturer with a screw machine in his plant make something for offense.
2. No more strikes.
3. Return to the 48-hour week.

4. Speed production by giving "efficiency men" a free hand.

5. Wipe Japan off the map, and then polish off what's left of Hitler. These two militaristic people should be utterly crushed, and never again be allowed to train their children for battle.

There should be no cleavage of thought in regard to the necessity of blowing the Japanese navy out of the water. Japan created the issue herself. Moreover, this is a war which has been brewing for more than three decades, and most Americans know it.

It's a bit inconvenient to undertake at this moment the task of subduing the Little People Who Think They Are Divine, because of our commitments to England in the Eastern theater of war. But we shall be equal to the task. It will just take us a little bit longer than we had calculated.

SHIFT TO WAR ECONOMY WILL BE ACCELERATED

As we see it, there's no change in the situation at home on the industrial front. We were already engaged in shifting as fast as we could into a war economy. This process may now be accelerated, providing we get the full cooperation of labor leaders. And we had jolly well better get that cooperation.

Refrigeration, of course, is just as essential now as it was before Japan committed hara-kiri. Food still must be preserved until consumed, and food defense is national defense.

Now that we are actually in the war, however, we trust that the industry will devote its talents and its brains to the devising of better and quicker methods of making armaments, and new inventions and methods of destruction.

Up until the surprise bombing of the loveliest spot on earth, our President had led us to believe, in all sincerity, that we might be spared the scourge of Mars. It was beginning to appear as if his diplomacy would succeed.

But now war has been thrust upon us. We have no choice but to show the world how terrible is our power to destroy.

NEWS AND ITS STAFF AID IN DEFENSE

The NEWS is proud of the fact that 25% of its male staff is already enrolled in America's armed forces—an extraordinarily high percentage, we believe. It is also proud of the fact that its technical information is being helpful to our allies and defenders everywhere.

Just last week we filled an order for our Commercial Refrigeration Service Manual requested by soldiers on Midway Island. We have also received new and renewal subscriptions in the last fortnight from Hawaii, New Zealand, Australia, and South America. Because of its technical information, the NEWS is given top cargo rating, whereas such publications as the Saturday Evening Post are denied valuable space in outgoing ships.

We're all in this together, and each of us can do his bit by performing his own job better than he ever performed it before.

Let's give 'em hell!

They'll Do It Every Time By Jimmy Hatlo



LETTERS

READS A CLIPPING, SENDS A CHECK

428 13th St.
Brownsville, Tex.
Circulation Mgr.:

Bill Rowles of Norge Southwest Sales Co. of San Antonio, Tex. sent me a clipping of the article by George F. Taubeneck in your June 25 issue.

Here is my check for \$4.00 for the NEWS. Have been selling the complete line of Norge since 1932, and doing rather good at it, so I think that Bill will stay with me.

TOM STEVENSON

APPRECIATIVE

146 Burnett St.
Elizabeth, N. J.

Publisher:

In looking over refrigeration books at our local library my eye was caught by K. M. Newcum's master service manuals on commercial refrigeration, C-1, C-2, C-3. The price listed for each being \$1.00, I enclose \$3.00 Money Order.

Being connected with refrigeration these books represent the best in service manuals, to me, and hoping the general public are as appreciative as I.

VICTOR L. ROTH

HIS HELPER

Box 239, Lynchburg, Ohio

Sirs:

Please find a money order for five dollars as I would like you to send me Household Manuals Nos. 2, 3, 4, and 5, also include in the order Manual No. C-3.

The NEWS is great, I call it my "helper."

GEORGE HALL

GOOD WORK

351 Geneva Rd.
Dayton, Ohio

Dear Sirs:

Enclosed please find money order for \$4, for which I wish to renew my subscription to your news weekly for one year.

I think it is a swell paper. Keep up the good work.

ARTHUR O. POOCK

PRAISES MANGAN'S BOOK

United Commercial Sales Co.
925 South Grand Ave.
Los Angeles, Calif.

Sirs:

Congratulations on your fine issue of July 16, which does a superlative job of expounding the benefits of commercial refrigeration.

While this issue was addressed primarily to OPACS, we believe it will make fine sales ammunition for our salesmen. We, therefore, enclose our check for \$2.00 and ask that you mail us 10 copies of this issue.

Purely aside, as it has nothing to do with commercial refrigeration, let me again congratulate you on your publicizing of R. E. Mangan's "Appliance Advertising and Merchandising." Having known "Bob" for many years and having had previous connections with him where we were both interested in merchandising and advertising domestic products, I know he has a message worth many

times the cost per copy for everyone interested in the appliance business. You will find enclosed a check for a copy of his book.

T. H. CHAMBERLIN,
President

DICK DAWSON PRESENTS COGENT STATEMENT TO SECRETARY WICKARD

2628 Big Bend Blvd.
St. Louis, Mo.

Nov. 18, 1941

Hon. Claude R. Wickard
Secretary of Agriculture
Washington, D. C.

Dear Mr. Wickard:

I have noted with interest the leaflet "Food Will Win the War and Write the Peace" being distributed by the Department of Agriculture. With the thoughts there set forth, every thinking American must be in complete agreement.

According to the report recently issued by R. M. Evans, Administrator of the Agricultural Adjustment Administration, and Paul H. Appleby, Under-Secretary of Agriculture, in "Defense" Nov. 4 issue, the foods which must be produced in greater quantities are meat, cheese, eggs, dairy products, lard, etc. According to press reports, the Department of Agriculture is following through on this program by encouraging farmers to raise less wheat and cotton, and to produce more meat and dairy products.

I would respectfully point out one additional step which appears necessary to the successful fulfillment of your program. Meat and dairy products are highly perishable foodstuff and must be kept under refrigeration from the time they are produced until they reach the consumer's hands. Practically all the materials used in refrigeration equipment are on the "Critical List." To date, no priorities have been made available to the refrigeration industry by the Office of Production Management with one exception. This exception is General Preference Order P-22 which applies an A-10 preference rating for maintenance and repair only of existing wholesale food processing or storing facilities only.

No provision has been made for increased refrigeration facilities to take care of the increased food production which we all agree is necessary. No provision has been made for the maintenance and repair of existing refrigeration equipment on farms or retail establishments. Worse still, copper order M-9-c restricts the use of certain refrigeration parts which have already been partially or completely fabricated.

I respectfully submit that if the food program is to be as successful as it deserves, that priorities must be made available for the following:

1. Maintenance and repair for essential food processing or storing on farms and retail establishments as well as wholesale plants.
2. New refrigeration equipment for essential food processing and storing on farms, wholesale and retail establishments, and others. Provisions for increased refrigeration facilities should be provided in the same percentage of increase over existing facilities that is contemplated in the increased farm production of perishable foodstuffs.

Henry A. Dinegar, Chief of the Refrigeration Section, Consumer Durable Goods Division, Office of Production Management, can furnish all the data pertinent to the establishment and maintenance of the refrigeration necessary to adequately protect our production of foodstuffs.

RICHARD S. DAWSON

The Service Man's Notebook

By Henry Kronke

SIZE LIQUID LINES FOR PRESSURE LOSS OF LESS THAN 5 LBS.

The liquid line sizes recommended here are calculated to result in a pressure loss of less than 5 lbs. For easy computation the recommendations are made on the basis of the load. Pressure losses should be kept as low as possible, because the capacity of the expansion valve would be reduced and because the liquid may begin to vaporize if the loss is large. The pressure loss due to height of liquid will be given later.

Feet In Length	"F-12"	CH ₃ Cl	SO ₂	Feet In Length	"F-12"	CH ₃ Cl	SO ₂
Load Per Hour—2,000 B.t.u.				Load Per Hour—12,000 B.t.u.			
20	1/4	1/4	1/4	20	3/8	1/4	1/4
40	1/4	1/4	1/4	40	3/8	1/4	1/4
60	1/4	1/4	1/4	60	3/8	1/4	1/4
80	1/4	1/4	1/4	80	3/8	1/4	1/4
100	1/4	1/4	1/4	100	3/8	1/4	1/4
Load Per Hour—4,000 B.t.u.				Load Per Hour—18,000 B.t.u.			
20	1/4	1/4	1/4	20	3/8	1/4	1/4
40	1/4	1/4	1/4	40	3/8	1/4	1/4
60	1/4	1/4	1/4	60	3/8	1/4	1/4
80	1/4	1/4	1/4	80	3/8	1/4	1/4
100	3/8	1/4	1/4	100	3/8	1/4	1/4
Load Per Hour—6,000 B.t.u.				Load Per Hour—24,000 B.t.u.			
20	1/4	1/4	1/4	20	3/8	1/4	1/4
40	1/4	1/4	1/4	40	3/8	1/4	1/4
60	3/8	1/4	1/4	60	3/8	1/4	1/4
80	3/8	1/4	1/4	80	3/8	1/4	1/4
100	3/8	1/4	1/4	100	3/8	1/4	1/4
Load Per Hour—8,000 B.t.u.				Load Per Hour—36,000 B.t.u.			
20	1/4	1/4	1/4	20	1/2	3/8	3/8
40	3/8	1/4	1/4	40	1/2	3/8	3/8
60	3/8	1/4	1/4	60	1/2	3/8	3/8
80	3/8	1/4	1/4	80	1/2	3/8	3/8
100	3/8	1/4	1/4	100	1/2	3/8	3/8
Load Per Hour—10,000 B.t.u.							
20	3/8	1/4	1/4				
40	3/8	1/4	1/4				
60	3/8	1/4	1/4				
80	3/8	1/4	1/4				
100	3/8	1/4	1/4				

'Substitutes' Seen As Boon To Consumer

DAYTON, Ohio—Hardships imposed upon industry because of defense needs will result ultimately in the production of better consumer goods, believes F. L. Meacham, Frigidaire's manager of household engineering.

Faced with lack of materials, industry has experimented with alternatives, many of which are proving more worthy and economical than materials used in the past, he said. "Frigidaire has for many years, used certain basic materials in production," Mr. Meacham explained. "And while our usual experimental research proved that other materials were entirely satisfactory, we did not use them simply because it was not necessary. Now, however, with many basic materials unavailable, we have been able to take advantage of our earlier research on certain other materials."

"As a matter of fact, as a result of our earlier work, we have been able to use these new materials to such good advantage that they are proving to be as good, and in many instances even better than those we used previously, and we often wonder why we did not use them sooner."

Worthington 9-Month Profit \$2,081,672

HARRISON, N. J.—Worthington Pump & Machinery Corp. and its domestic subsidiaries (including Carbondale refrigeration division) reported for the nine months ended with September a net profit of \$2,081,672 after reserve for all federal taxes. This is equal, after dividend requirements on preferred stock, to \$5.93 a share on 265,985 shares of common stock, and compares with \$1,543,473, or \$4.12 on 250,665 common shares earned in the first nine months of 1940.

Serviceman Will Help 'Keep 'Em Flying'

HOMESTEAD, Pa.—To do their part in the nation's defense effort, John Krouse, refrigeration service man employed by the Reick-McJunkin Dairy Co. here, and his wife plan to establish a flying field of their own soon and teach flying.

Mr. Krouse has flown 120 hours, and his wife already has her private pilot's license. They own a Piper Cub 65 Franklin plane, and represent one of the few instances where husband and wife are licensed pilots, fly together, and plan to "double" in student training.

Enthusiasm of Mr. Krouse for flying has proved so "catching" that two other refrigeration service men connected with the dairy have taken it up.

New Metal Compound Repairs Tin Coating

PHILADELPHIA—A new metal coating compound designed for making repairs to damaged or worn tin coatings has been developed by American Solder & Flux Co. under the name of Amco Brand K.

It is suggested by the company for use on those surfaces of food containers which do not come into direct contact with the food itself, or for practically any other form of tin coating repair.

Since the melting point of Brand K is lower than that of tin, the original coating is not melted or disturbed in any way by the application, it is claimed. The coating on the repaired areas is said to join with the undamaged surrounding surface to form a continuous and protective surface.

While the finished coating has the appearance of tin it has an advantage not possessed by the original coating, in that it is completely rust



Meat Ball

This cosmic meat ball weighs 18,000,000,000 pounds! Each year American farmers grow it, packers process it, carriers move it and the Refrigeration Industry keeps it sweet and succulent. For millions of Americans no meal is a square meal without meat, and meat must be kept under refrigeration from the moment it is dressed. *Food defense is national defense!* Mills Condensing Units supply essential modern Refrigeration for our Army and Navy—in cantonments, arsenals, laboratories, hospitals, air-training schools, airports, navy yards. Mills Commercial Refrigeration plays its part, too, in protecting the nation's meat for our vast civilian and industrial armies—serving every day in food shops, dairies, meat markets and restaurants.

MILLS NOVELTY COMPANY • CHICAGO

New Dealership Formed In Asheville, N. C.

ASHEVILLE, N. C.—Sam E. Browne, for several years commercial refrigeration manager for Reusing's here, and H. T. Atkins, formerly in the building business, have established the A & B Refrigerating Co. of Asheville.

The new firm handles the complete Norge and Seeger lines.

Tanty To Manage Sales For Memphis Distributor

MEMPHIS, Tenn.—George C. Tanty, who has managed the electrical appliance departments of Woodson & Bozeman, Inc., distributor here for several national appliance lines, was recently appointed general sales manager. He was formerly on the Chicago sales staff of Philco Distributors, Inc.

Wisconsin Dealers Elect Hackbarth President

WAUSAU, Wis.—L. C. Hackbarth, Merrill, was elected president of the Central Wisconsin Appliance Dealers' Association at the annual meeting here Nov. 18.

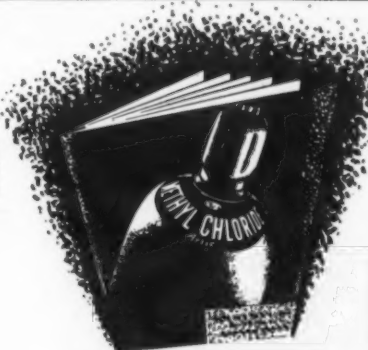
Elmer Strandberg, Antigo, was elected vice president, and H. C. Canfield, Wausau, was renamed secretary-treasurer.

92 Pages of
Practical Information
for
Refrigeration Engineers



METHYL CHLORIDE MANUAL

Visit Du Pont Exhibit at the Fourth All-Industry Refrigeration and Air Conditioning Exhibition (Booths 314, 316, 318)—Stevens Hotel, Chicago, January 12-15.



This new Methyl Chloride Manual contains chemical, physical, physiological and refrigerating data . . . tables of thermo-dynamic properties . . . engineering information . . . handling and servicing methods. Send for your free copy today!

For information about nearest source of supply, write to
THE R. & H. CHEMICALS DEPARTMENT
E. I. DU PONT DE NEMOURS & CO. (INC.)
Wilmington, Delaware
or National Ammonia Division
Frankford P. O., Philadelphia, Pa.

Men From the Field Will Come To Industry Show To Find Out 'Where They Stand'

Exhibitors Will Have New Kinds of Questions To Answer This Year

News Survey Gives Preview of Types of Inquiries

"QUESTIONS WHICH WE WILL WISH ANSWERED THIS YEAR WILL PERTAIN TO DELIVERIES, TAXES, AND PRIORITIES," WARNS W. E. BURCH, WINTERBOTTOM SUPPLY CO., WATERLOO, IOWA.

"We'll be looking for new items and information pertaining to the manufacturers' regular items, too," says Mr. Burch.

"WHEN I ARRIVE FOR THE SHOW THIS YEAR, I AM GOING TO TRY TO FIND OUT HOW WE ARE TO DO BUSINESS FOR THE 'DURATION,'" ASSERTS ROBIN W. ADAIR OF ROOT, NEAL & CO., BUFFALO.

"The jobber representative has the responsibility of explaining the Government priority plan, as well as substitutions, which naturally come along with such an emergency," Mr. Adair continues. "I'll expect the manufacturers to tell us what they

can do for us, even though it hurts. As regards the government officials, I'm going to do a lot of listening, and most of all, be sure I'm right. For me, this is going to be a big 'listening convention' and I expect to be sitting in a chair marked 'all out for Defense.'"

"ABOVE ALL, I THINK WE SHOULD DEVOTE MOST OF THE 1942 CONVENTION TO REINFORCING THE FIGHT YOUR GOOD NEWSPAPER HAS STARTED ON EDUCATING GOVERNMENT OFFICIALS TO THE VALUE OF REFRIGERATION IN NATIONAL DEFENSE, AND IN OBTAINING VERY HIGH PRIORITIES ON NEW EQUIPMENT AND REPAIR PARTS," SAYS G. W. PERRINE, SPRINGFIELD, OHIO.

"I think we should also devote some time to the matter of getting materials and having government officials explain priorities."

"INASMUCH AS WE DO NOT HAVE PRIORITY RATINGS SUFFICIENT TO COVER ALL OUR NEEDS, THAT WILL BE A SUBJECT FOR WIDE DISCUSSION," BELIEVES BROUSE D. RINEHART, PRESIDENT, RINEHART, INC., RICHMOND, IND.

"Possibly by Show time there will be some ruling as to refrigeration priorities which would naturally require discussion as to applications, etc.," comments Mr. Rinehart in discussing "what's likely to be discussed" at the Show.

CANADIAN SUPPLIER H. F. NYE SAYS: "WE ARE GOING TO BE INTERESTED IN LEARNING ABOUT PRESENT ATTITUDES TOWARDS THE EXPORT OF REFRIGERATION EQUIPMENT."

"At present I am planning to attend the coming Show in January," says Mr. Nye of Railway & Engineering Specialties, Ltd., Toronto, "and being a so-called foreigner I am going to be interested in learning from the manufacturer just what we can expect in the way of material in the coming year inasmuch as we are about 90% dependent on the American manufacturer for our supplies and the attitudes of government officials towards the export of such equipment."

"ARE YOU GOING TO BE ABLE TO MAKE DELIVERY, AND, IF SO, WHAT KIND?" IS THE QUESTION THAT'S GOING TO BE ASKED BY C. D. DARNELL, SOUTHWEST REFRIGERATION SUPPLY CO., HOUSTON, TEXAS.

"I suppose this will be the one question that will be asked the most during the entire Show," Mr. Darnell says.

"IT IS IMPORTANT THAT ALL OF US DISCUSS MUTUAL PROBLEMS COVERING THE DISTRIBUTION OF AIR CONDITIONING AND REFRIGERATION SUPPLIES FOR THE COMING YEAR," DECLARES A. H. HOLCOMBE, JR., VICTOR SALES & SERVICE CO., PHILADELPHIA.

"Manufacturers will wish to meet their jobbers and discuss with them the items which can be shipped promptly," says Mr. Holcombe. "They will also wish to help them secure more priority business. Jobbers will wish to discuss among themselves the best methods of handling restricted outputs due to defense business and substitutions and alternates will have to be provided in many cases."

"IT WILL BE VERY INTERESTING TO MANY OF US TO SEE HOW SUCCESSFULLY OUR INDUSTRY HAS ADAPTED SUBSTITUTE RAW MATERIALS IN THE MANUFACTURE OF THEIR PRODUCTS," RELATES J. J. FERRIS, SALES MANAGER, QUILLEN BROTHERS REFRIGERATOR CO., INDIANAPOLIS MANUFACTURER.

"This get-together should better prepare all of us to properly adapt methods and ideas to operate efficiently our own individual businesses during the year 1942," Mr. Ferris believes.

"THERE ARE MANY THINGS THAT WE WOULD LIKE TO HEAR FROM THE MANUFACTURERS THIS YEAR AND THE FIRST, OF COURSE, WILL BE AS TO THEIR ABILITY TO FURNISH US WITH THE PRODUCTS WE NEED DURING 1942 AND 1943," DECLARES G. J. ROCHE, PARKS & HULL APPLIANCE CORP.

"We also hope to get information on what changes of policies may be due to the changing conditions and what plans are on hand relative to increased prices and changing discounts," says Mr. Roche.

"From the government officials and association executives we would like an interpretation of the many confusing orders, regulations, etc., that

have been issued. A few who can make personal contact on these matters may obtain a much better understanding of the whole situation than can be obtained by the many who cannot avail themselves of this personal contact. What is being done by the government to assist the refrigeration industry to obtain necessary materials during the coming year or years? What shortages in basic materials are being anticipated from the statistics already at hand and what measures are being taken by the government to extend various operations to the end that these shortages may be alleviated?"

"THERE ARE A FEW MORE LINES OF MERCHANDISE WHICH I HOPE TO STOCK AND FEEL CERTAIN THAT I CAN CLOSE THE DEALS AT THE SHOW," ASSERTS HARRY G. HOFFMAN, HOFFMAN SUPPLY CO., SPRINGFIELD, MO.

"The show this year is going to be more helpful in that we can find out where and when and what materials we will be able to obtain for 1942," Mr. Hoffman believes.

"THE MOST IMPORTANT THING I WANT TO HEAR THIS YEAR FROM THE EXHIBITORS IS A WORD OF CONFIDENCE," VOICES A. G. POPE OF THE PFLUGRADT CO., MILWAUKEE.

"We are prone to wonder at times just what will become of us (in this day of priorities) if we cannot get equipment and supplies. We all know that eventually business will resume an even keel, but a few words of encouragement will do wonders to our morale," Mr. Pope continues.

"I WANT TO SEE THE APPLICATION OF NEW PRODUCTS IN THE FIELD OF AIR CONDITIONING AND REFRIGERATION," STATES J. L. DRISKELL OF BURLEY, IDAHO, WHO WILL MAKE A 3,500-MILE TRIP TO ATTEND THE SHOW.

"Through normal channels it might take several years for such developments to penetrate into this part of the western states," Mr. Driskell reasons.

"I LIKE TO INSPECT AND ACTUALLY 'FEEL' THE MANY PRODUCTS ON EXHIBITION," COMMENTS G. A. POST, LANGSENKAMP CO., INDIANAPOLIS, IND.

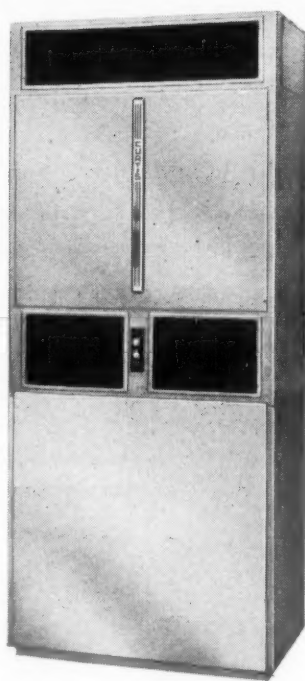
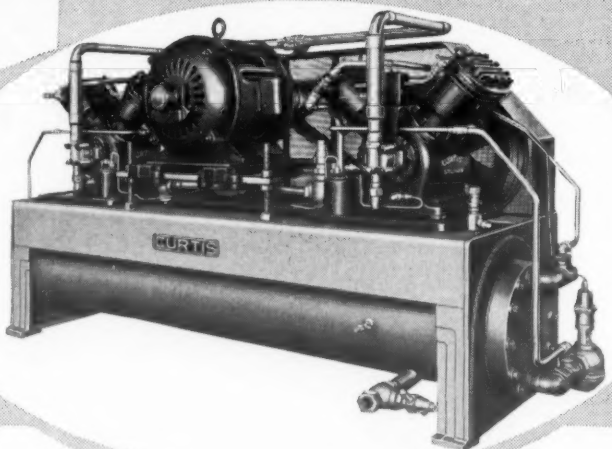
"To do so gives one a sense of values not to be had by reviewing all of the literature that could be sent through the mails," he explains.

CURTIS

The Line That Meets ALL Requirements...

PACKAGED AIR CONDITIONERS FROM 3 TO 15 TONS

CONDENSING UNITS FROM FRACTIONAL TO 50 TONS



★ Because of the completeness of the Curtis line, you can meet every air conditioning need with Curtis equipment.

Curtis Packaged Air Conditioners are available in 3, 5, 7½, 10 and 15 ton sizes. They provide the economical, low cost way to air condition retail stores, restaurants, drug stores, offices, etc. They are modernly streamlined in appearance, occupy little space and can be quickly installed without disturbing routine—are adaptable for heating if desired. Curtis units are readily financed, too, an important aid to sales.

For larger installations, for industrial and processing plants, the Curtis line of condensing units includes models up to 50 tons in capacity. Curtis

coils and forced draft unit coolers are designed and built to balance perfectly with the highly efficient Curtis condensing units.

Traditional Curtis quality, advanced engineering and precision manufacturing methods assure complete satisfaction—whether you sell, buy or specify Curtis equipment. It's the "Extra Value" Line that is making money for dealers everywhere.

For complete information on Curtis Packaged Air Conditioners, Curtis Condensing Units or the complete Curtis line, write direct today.

CURTIS REFRIGERATING MACHINE DIVISION of Curtis Manufacturing Company

1912 Kienlen Ave., St. Louis, Mo. Established 1854



THE LA CROSSE CLUB



A Junior model accommodating one keg on tap, three keg storage and approximately 10 cases, with or without bar top.

Write NOW for full particulars.

La Crosse Novelty Box Manufacturing Co. La Crosse, Wisconsin

Jobbers To Tackle New Problems at National Meeting

NRSJA To Convene In Chicago During All-Industry Show

CHICAGO—Problems that refrigeration supply jobbers face in 1942 will hold chief interest of members of the National Refrigeration Supply Jobbers Association at their national convention to be held here Jan. 12 through 14 in connection with the All-Industry Refrigeration and Air Conditioning Exhibition at the Stevens hotel.

Although the program of the association is not scheduled to get under way until noon Monday, Jan. 12, directors will meet Sunday morning, Jan. 11.

Registration of N.R.S.J.A. members will begin at 8 a.m. Monday, at which time all members registering will receive their badges, tickets to various luncheon meetings, and other information.

INDUSTRY-WIDE LUNCHEON

Everyone in the refrigeration industry is invited to attend the luncheon to be held at 12 noon by the jobbers. The luncheon meeting will be addressed by Chester E. Borden, president of N.R.S.J.A.; Earl A. Vallee, president of Refrigeration Equipment Manufacturers Association, and probably a member of Congress.

Mementos will be presented during the luncheon by Mr. Borden to former presidents of the association, H. S. McCloud, R. H. Spangler, H. W. Merkel, Leo G. Gorton, and F. H. Langsenkamp, Jr., in recognition of their past services.

Tuesday morning meeting, scheduled to start at 9 o'clock, will open with a reading of the minutes of the previous convention and the introduction of new members of the association.

If the "Defense Day" program planned by Rema for Tuesday is changed to take the whole day, the jobbers will rearrange their program, it is said.

Following President Borden's address, the secretary's and treasurer's reports will be read.

Highlights of this session will be a talk by G. P. Ellis of Wolf & Co. Mr. Ellis will review the results of the surveys conducted by N.R.S.J.A. on costs and sales trends in the refrigeration supply industry, and outline the activities along these lines planned by the association for 1942.

A luncheon is planned for 12:30 p.m. Tuesday in the Upper Tower ballroom and will feature a prominent speaker as yet unannounced.

TO DISCUSS PRIORITIES

Priorities will be discussed in the afternoon by the jobbers, to be followed by addresses by H. T. McDermott, secretary of the Refrigeration Service Engineers Society, and Charles Logan, vice president of the American Society of Refrigerating Engineers.

The afternoon session will be concluded with a report of the past year's activities and future plans to be given by Fred S. Hovey, executive secretary, as well as reports from committee chairmen.

A prominent manufacturer will discuss "Copper Tubing in 1942," according to present plans, at the meeting scheduled for 9 a.m. Wednesday, Jan. 14. Following reports from the resolutions, finance, and manufacturers relations committees, and the chief talk, the nominating committee will report.

The convention will close Wednesday following a joint luncheon with the Refrigeration Equipment Manufacturers Association.

Jobber's Petition Signed By 20 Chinese

SAN FRANCISCO—One of the most unusual petitions seeking a better priority rating for refrigeration equipment that jobbers and service men have collected may be that sent in by Clarence F. "Sandy" Pratt of California Refrigerator Co. here. Included in his list are the names of almost 20 Chinese.

Borden & Holcombe Head Jobbers



CHESTER E. BORDEN
President of the N.R.S.J.A.



A. H. HOLCOMBE, JR.
Vice President of National
Jobbers Association.

Trade Associations Are Called 'Arm of Defense' By Gov't

WASHINGTON, D. C.—Trade associations are becoming more and more valuable as an "arm of defense," particularly in their cooperation with national defense agencies in furnishing facts and figures on the needs and requirements of the industries which they represent, writes C. J. Judkins in a recent issue of "Domestic Commerce," a publication of the U. S. Department of Commerce.

In the early stages of defense, the article points out, some proponents of trade associations were disappointed by what they regarded as a failure on the part of government officials to fully appraise the value of their work. However, the defense program is only now beginning to reach the stage where the trade association can be of its greatest value.

"Wisely led, the trade association should emerge as perhaps the most potent factor in the solution also of the post-defense problems which will face the United States when once again the feet of men are set upon the paths of peace," the article declares.

"At the outset of defense, government had to turn to large industry, because only large industry had the machines, management, labor, and

'know-how' to undertake the great prime contracts which were at the foundation of defense. Now the physical requirements of defense are such that smaller units must be brought in through sub-contracts. The smaller the enterprise, the less its opportunity to contact Washington directly. Where can a better forum be found than in the trade association—the natural place for businessmen to come together?"

In the fall of 1940, when the gravity of the emergency became apparent, many associations immediately began the compilation of factual reports on their respective industries for use of the new defense agencies, the article continues. A number of helpful surveys also have been made, often at the request of defense bodies.

"Units in industries cramped for materials can do little or nothing by themselves," declares a recent bulletin of the Trade Association Executives in New York City.

"But they can get the best treatment which the situation will permit by acting together, through their trade associations. Beyond this, the trade association has facilities for determining what substitute materials can be used, and where to get them.

Proper Nutrition Needs Postwar Study—Welles

NEW YORK CITY—The problem of proper nutrition is one which will merit serious study in the postwar period, both from the standpoint of immediate needs and in the long-range aspect, Sumner Welles, under-secretary of state, declared recently in an address before the twenty-eighth National Foreign Trade Convention here.

"Humanitarian considerations and self-interest combine to make the subject of proper nutrition one of

outstanding importance to our people," Mr. Welles said.

"If the dietary needs of the world's population could be satisfied to the extent necessary to meet minimum standards for sustaining health, the burdensome surpluses which normally trouble producers of many staples would disappear. I am glad to be able to assure that this subject is being given preferential attention by agencies of this and other governments."

YOUR job was never more important



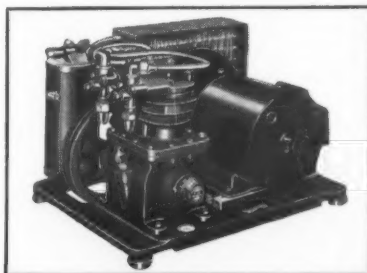
Right now, as in every emergency, food is vital to the nation's security.

Your job in the refrigeration industry was never more important. It is up to you to keep the vast number of American people supplied with dependable refrigeration so vital in the preservation of food. While the job of the food industries and merchants is to supply defense workers, soldiers and civilians with healthful, wholesome, nutritious food which is

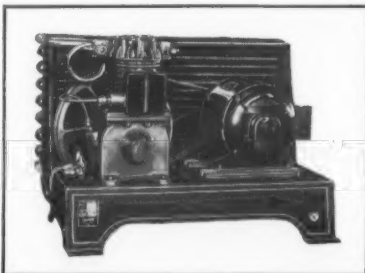
especially necessary in providing Americans with the vital energy needed during this critical period.

It is our duty to build efficient and dependable condensing units so that the food industries will have adequate refrigeration for properly preserving and displaying food.

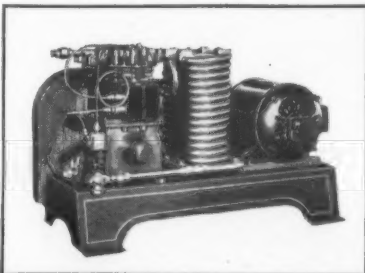
To accomplish this successfully, every Brunner man has rolled up his sleeves and is working shoulder to shoulder to do his share faster and more efficiently.



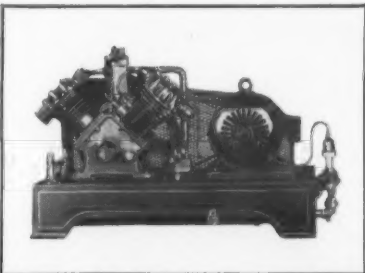
BRUNNER MODEL A-38... 3/4 h.p. air-cooled close coupled condensing unit, ideal for use with cabinets and boxes where space available for unit is limited. It is also well adapted for large domestic refrigerators and self-contained cabinets within its capacity.



BRUNNER MODEL A-100... 1 h.p. air-cooled condensing unit for average heavy-duty commercial applications. It will handle an 8' x 6' x 10' cooler in addition to a 16' display case. Also recommended for beer coolers for pre-cooling barrels of beer.



BRUNNER MODEL W-200... 2 h.p. water-cooled condensing unit especially adaptable for large soda fountains and large walk-in coolers or to handle a battery of market display cases. An ideal unit for medium size air conditioning installations.



BRUNNER MODEL W-500... 5 h.p., 4 cylinder water-cooled condensing unit for heavy duty commercial and air conditioning applications where high efficiency, low power consumption and quiet operation are of prime importance.

BRUNNER

MANUFACTURING COMPANY, UTICA, N. Y., U. S. A.

Air Compressors ♦ Refrigerating Equipment

MAKE YOURSELF AT HOME IN OUR BOOTHS 114-116 AT THE ALL-INDUSTRY SHOW, JANUARY 12th-15th.

HEAR THE EXPERTS FROM WASHINGTON AND FROM YOUR INDUSTRY

FOURTH ALL-INDUSTRY REFRIGERATION AND AIR CONDITIONING EXHIBITION

January 12 to 15, 1942, Hotel Stevens, Chicago

You can't afford to miss it!

Serviceman Who 'Tinkers' With Old Equipment Finds Odds & Ends Very Valuable In Present Emergency

DALLAS, Tex.—Perhaps it was because he entered the business way back in the days when a fellow often had to set about to cut his own gaskets, and to have a blacksmith make him a wrench to fit the nuts on some new machine offered to the market, but it has been through the years the policy of J. L. (Jack) Booth, here, to have and to hold for future use odds and ends which to most might appear little more than trash. His ways have been proving right along to have the germ of wisdom; and now more than ever they are doing that.

In the year just ended Mr. Booth turned a total of more than \$7,000 in service revenues. His current accounts indicate that 1942 will see his gross equal if not exceed that figure. His current patron lists include some of the most desirable accounts in Dallas. All of them are commercial operators. He bothers with none other.

There are several things which Mr. Booth says experience plus

observation have been teaching him over and over again. Most important among these are the facts that desirable buyers of his service are interested in that, and that alone. Too often, he says, the service engineer has the notion that if he is seen often enough he is certain to favorably impress the "big shot" who has charge of handing out the service work. A service engineer will do far better to keep out of sight as much as possible, Mr. Booth avers.

The big time operator, especially in these uncertain days, may be compelled to turn to temporary methods or devices to accomplish purposes which hold genuine promise of profit to the organization he represents, and in turn prospective ones to the engineer. These likely will not be jobs of considerable proportions since equipment probably will not be readily available.

Out in the shop operated by Mr. Booth are some 18 to 20 compressors ranging in capacity from $\frac{1}{2}$ to 3 hp. None of them cost Mr. Booth

over \$10. He picked them up here and there and reconditioned them.

Having a supply of such motors and compressors around is nothing new for Mr. Booth. He has been doing that right along through the years. They have been a highly important part in his business method.

When an operator wants service, Mr. Booth points out, he wants it at once. If it be that compressor trouble is at root, he has a machine around which can be placed in substitute for that needing service. Mr. Booth makes no rental charge for patrons' use of such equipment. He puts it in, takes the troubled machine home and makes the necessary repairs.

Further, these machines have repeatedly proven their worth in helping him aid a patron in experimental expansion, with result that his established volume of service work keeps growing.

At the present time, for instance, one such patron—a leading dairy products operator in Dallas—is taking advantage of the industrial boom by getting rights to place milk dispensing equipment into large plants.

The operator wanted to experiment with such equipment, operated on slot-payment basis. Obviously, with priorities requirements what they are, no end of red tape would have

He Puts 'Em Back Together Again



Jack Booth (left) and Gene Gunnels, his assistant, with a few of the 20-odd rebuilt compressors which the company always keeps in readiness for use in case of emergency. There are more than eight different types of machines in the collection.

to be cut through before the wheels of procuring equipment would be cut. The operator wanted, if possible, to beat some competitor who might have similar ideas to the draw. Still, he wanted, if possible, to be sure of its success.

This operator is one of the Booth patrons. He called in Mr. Booth and outlined what he wanted. Jack set to work to build it for him.

Each of these machines will be another unit listed for servicing by the Booth organization. As fast as priorities restrictions will permit, the original models will be replaced with new.

While Mr. Booth doesn't believe in trying to sell parts and supplies to big operators, on the other hand, the customer likely will listen favorably to suggestion that it will speed up good service if he will keep a stock of those things ready for emergency use—in the shop of the service man.

RESEMBLES A WAREHOUSE

In ways the Booth shop resembles a warehouse. His large patrons have done this. He has the things required in stock for use. He does not need call the jobber at some outlandish hour and then have to wait until the latter can fill his need. Further, this is done without the engineer having capital tied up in such stocks.

It is necessary, obviously, that strict account be kept of all such supplies in hand, and that inventory be regular of them. Further, that those credited to this patron be kept segregated from those of another.

Says Mr. Booth of the service business:

"The principal thing, in my opinion," he says, "is that the man understands what he is doing and that he sell service. We have not one other thing to sell.

"I take old equipment apart and take out whatever can be used. I have parts in oil here from machines

which have not been made in years. However, here they are, when and if they are needed.

"We don't throw away much of anything here."

Mr. Booth pointed to a washtub filled with expansion valves.

"Those are valves we took in the past year," he explained. "Each of them will be taken apart and the usable parts salvaged and stored in oil. When things are dull, and we feel that way, we will assemble valves from them. From that pile we'll recover valves which some day will be worth while having."

NO CONTRACTS

Mr. Booth refuses to consider anything in the nature of contract servicing. Neither will he consider any of the so-called "flat rate" deals. He has not suffered in consequence.

"I figure a charge of \$1.50 as a basic charge for a service call is fair to all concerned," he says. "I look at myself and my men precisely as I would look at a doctor. He gets a flat price for a call—without trouble. So do we.

"When I encounter complaint, I remind the customer of the similarity between ourselves and the physician who answers summons.

"From the service call basis, the charge rises on basis of what is done. If we find something wrong and correct it, and a week or so later another trouble appears, we treat that trouble. We collect for that exactly on the same basis.

"The boys and I may spend a lot of time now and then building some experimental piece with what we have around. They know when we start it may all go out the back window when we are finished. And they also know that it may mean new or better present accounts. Further they know, too, that it helps them make better service engineers of themselves."

A Good Insulation must have "ALL THREE"



1 HIGH EFFICIENCY



2 LONG LIFE



3 MOISTURE REPELLENCE

The combination of these three features—high efficiency . . . long life . . . moisture repellence . . . is essential in an insulation. And, Dry-Zero insulation has "all three." Established under test as the most efficient commercial insulant known ("k" factor 0.24), Dry-Zero insulation, when properly installed, retains its heat-stopping efficiency far beyond the life of the refrigerator. The

natural waxy surface of the fibres makes Dry-Zero thoroughly water-repellent. In addition, it is remarkably free from settling, rotting, disintegration, and odor absorption.

In the convenient Bound-Batt form, Dry-Zero insulation is low in cost and easy to apply. Write, Dry-Zero Corporation, 222 N. Bank Drive, Chicago; or 60 E. 42nd Street, New York, New York.

You get
"ALL THREE"
with

DRY-ZERO Insulation



"Holding 'er Steady"
SINCE its beginning in 1927, Utilities Engineering Institute has had but one guiding policy: TRAIN MEN THE RIGHT WAY. This has won for us a place of respect in the industry. For employers tell us that U.E.I. men KNOW refrigeration and air conditioning. That's why they are hired—and stay hired . . . and that's why, as we go into our sixteenth year, you find us "Holding 'er steady" along the same course of ethical representation and THOROUGHNESS in instruction that has meant much to us, our graduates, and the industry.

UTILITIES ENGINEERING INSTITUTE 1314 BELDEN AVENUE CHICAGO

All-Industry Banquet May Be Host To Popular Radio Quiz Program

'Dr. I. Q.' Expected, Stage Show And Dancing Also Planned

Committee Headed By LeBaron Plans 'Different' Show

CHICAGO—Foremost among the features now under consideration by the entertainment committee for members of the industry who attend the All-Industry Banquet Tuesday night, Jan. 13, is an audience participation program with "Dr. I. Q." and his staff, one of radio's best known quiz programs.

Complete with the silver dollar awards for the right answers the "Dr. I. Q." program would give a novel twist to the entertainment program of the Banquet which highlights the All-Industry Refrigeration & Air Conditioning Week, believes the entertainment committee, which is headed by Robert LeBaron, sales manager, Virginia Smelting Co.

It is understood that a preliminary contact has been made with the producers of this radio "quiz" program and that arrangements can probably be made to conduct the program at the Banquet.

There will be other entertainment, of course, and dancing to a nationally known dance orchestra after the scheduled entertainment program has been completed.

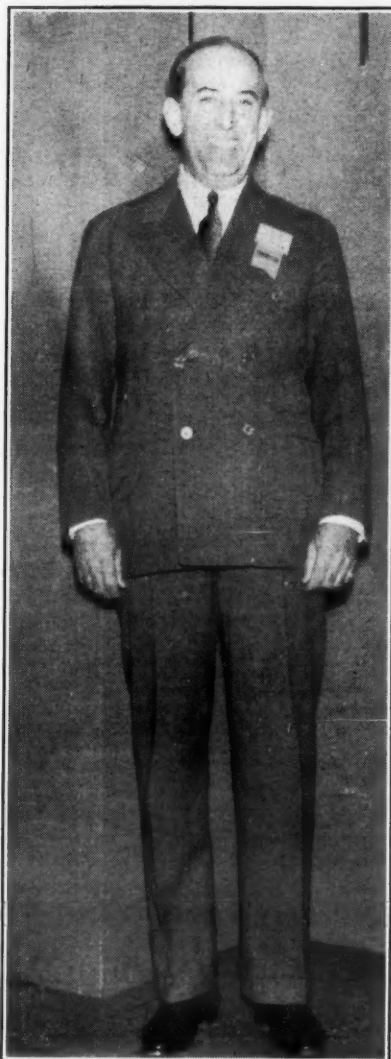
That high caliber entertainment will be provided for guests at the All-Industry Banquet is assured by the personnel of the committee.

Chairman LeBaron was at one time a musical director of the National Broadcasting Co., and is a composer of music and musical scores. As such, he has a wide acquaintanceship in the entertainment world and an intimate knowledge of the things that make a show "click."

Mr. LeBaron has also been active in representing the Refrigeration Equipment Manufacturers Association in contacts with the government agencies in Washington, and with Earl A. Vallee, vice president, Automatic Products Co. and president of Rema, may be instrumental in securing some of the highest ranking Defense officials to speak in Chicago.

The other members of the entertainment committee are Ivan Corcoran, Square D Co., and E. J. Tweed, president, Dole Refrigerating Co. Both of these men have handled in very successful style other entertainment programs for the association, and both are very much "up" on what is what in the show business.

An orchestra will furnish music



ROBERT LeBARON
A man who has held positions of high importance in the entertainment world, he is now sales manager of Virginia Smelting Co. and chairman of the entertainment committee for the All-Industry Banquet.

during the dinner service. At the conclusion of the dinner President Vallee will welcome those present, after which he will turn the gavel over to the master of ceremonies who will lead the community singing and present the entertainment acts. Dancing will then follow to close the Banquet evening.

Cooling Keeps Waiting Lines 'Cool' In Busy Dayton Cafeteria

DAYTON, Ohio—Use of air conditioning to eliminate complaints on the part of patrons who must stand in line to purchase food is a feature at the Virginia Cafeteria here.

Largest cafeteria in the city, the Virginia is rushed at breakfast, lunch, and dinner time with more people than can be accommodated, resulting in a line of 50 or more persons standing from the end of the steam tables to the door.

During hot summer weather, many of these people used to change their minds and go somewhere else to eat, driven off by the oppressive heat from the steam tables combined with humid summer weather.

Meeting this problem now are three 5-ton Frigidaire packaged conditioners, two spaced 10 feet apart at the front of the restaurant, another at the rear of the building near another entrance where a similar queue of waiting patrons often forms.

Osterhout Has Executive Civilian Supply Job

WASHINGTON, D. C.—Appointment of Harold W. Osterhout as executive officer of the Division of Civilian Supply has been announced by Joseph L. Weiner, deputy director.

Mr. Osterhout, assistant vice president of the National City Bank of New York, has been granted a leave of absence to take charge of the organization and personnel of the Division of Civilian Supply.

Robert Grant Joins Staff Of Young Radiator Co.

RACINE, Wis.—Robert Grant has joined Young Radiator Co. in a production and managerial capacity.

Mr. Grant received his early production training as a line superintendent for Nash Motors at Kenosha and Racine, Wis., and later served as executive vice president of Fuller-Johnson Corp., Detroit, and its subsidiaries—Good Roads Machinery Corp., Kennett Square, Pa.

Philco Sales Increase 4 Million In Quarter

PHILADELPHIA — Consolidated gross sales of Philco Corp. exclusive of its Canadian subsidiary, amounted to \$19,681,520 in the third quarter of 1941, as compared with \$15,417,352 in the corresponding period last year.

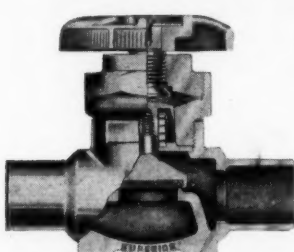
Consolidated earnings in the third quarter of 1941 amounted to \$733,939, after provision of \$1,125,000 for federal and state income taxes and excess profits taxes. Earnings after taxes were equivalent in the third quarter of 1941 to 53½ cents per share on each of 1,372,143 shares of common stock outstanding, as compared with 53 cents per share of common stock in the same period a year ago.

For the first nine months of 1941, consolidated gross sales totaled \$54,892,800, as against \$37,433,685 in the same period a year ago. Net earnings in the first nine months of 1941 totaled \$1,653,047, or \$1.20 per share of common stock, as compared with \$1,244,159, or 90 cents per share, in the corresponding period in 1940.

Superior PRODUCTS ★ ★ ★ ★ ★ ★ FOR YOUR Defense JOBS

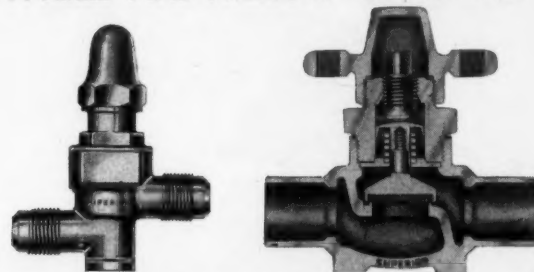
Increased refrigerated space for the accelerated production of perishable foods places a heavy responsibility upon the refrigeration industry. Shortage of metals condemns waste and inefficiency. Do your part to conserve materials. Design to produce more refrigeration per watt hour. Select equipment which requires a minimum of service. Specify SUPERIOR — the quality buy-word of the industry.

DIAPHRAGM PACKLESS VALVES



Entire internal assembly removable for soldering or inspection. Equipped with famous pressure cup below diaphragm. Two and three way. Flare sizes ¼" to ¾", Sweat sizes ¼" to ¾".

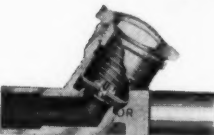
PACKED AND PRESSURE CUP VALVES



Flare and sweat sizes ¼" to ¾" (two and three way) have hex seal cap. Sweat sizes ¼" to 2½" (globe) have wing nut seal cap. Internal assembly (all sizes) removable for sweating to valve body.

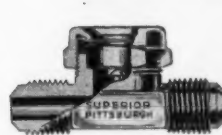
★ Refrigeration is Vitally Essential to Our National Defense Efforts ★

CHECK VALVES



Very sensitive springs. Less than 5 ounces pressure drop. Positively will not chatter or hum. All internal parts easily removable for sweating or inspection. Sizes ¼" to ¾" Flare; ¼" to ¾" Sweat.

LIQUID INDICATORS



With or without seal cap. Flare sizes ¼" to ¾"; Sweat sizes ¼" to 1½". On ½" Sweat to 1½" entire upper assembly may be removed as a unit to facilitate soldering of refrigerant lines to connections.

★ Refrigeration-Food Preservation and National Defense are Synonymous ★

DEHYDRATORS



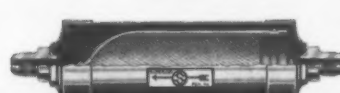
Silica-Gel or Activated Alumina. Refillable and non-refillable. ¼" to ¾"; ¼" to 5 H.P.; 2 to 60 cubic inches.

MANIFOLDS



With packless or seal cap valves. Two to six valves; ¼" to 2½" valves, with or without end fittings. Sweat or flare.

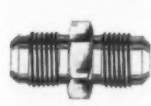
FILTERS



Highly efficient sack type filter. Sizes ¼" SAE to ¾" SAE. One to five horsepower.

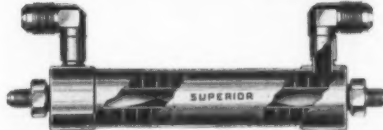
★ Don't take chances with the Nation's Health -- do the best job possible ★

FITTINGS



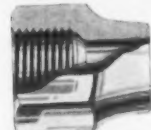
Unions, adapters, elbows, tees, crosses, caps, etc. ⅛" through 1".

HEAT EXCHANGERS



Unique design gives highest capacity per unit size. Sweat or flare connections. 4200 to 9725 BTU per hour.

FLARE NUTS



Brass and steel. Long and frost proof. Forged and bar stock.

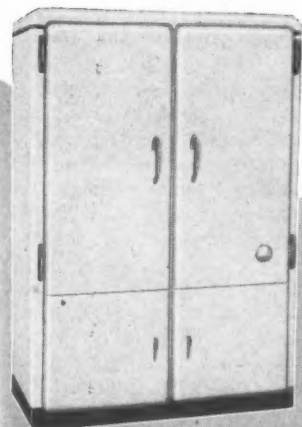
For complete details — see your Jobber or write for catalog
★ We invite you to visit the SUPERIOR EXHIBIT — Booth 514 at the 4th ALL INDUSTRY REFRIGERATION and AIR CONDITIONING EXHIBITION — Hotel Stevens — Chicago — January 12 to 15, 1942 ★

SUPERIOR VALVE & FITTINGS CO.
★ PITTSBURGH ★ PENNSYLVANIA ★

12 TO 71 CU. FT.

MOST COMPLETE 'REACH-IN' LINE ON THE MARKET!

Here's the widest selection of sizes and styles the industry affords—a model for every need. Distinguished by superb styling, fine construction and outstanding value.



Model 120 (above) has 12 cu. ft. capacity—the newest member of the "Midwest 'Reach-in'" family.

Model 700 (right) another new model has 71.5 cu. ft. capacity. In between is a full range of sizes and equipment. Write for full details now.



Midwest

MFG. COMPANY
Galesburg, Ill., U.S.A.

Export Division, 176 W. Adams St., Chicago
New York Office, 1775 Broadway

Substitute Materials For Present & Future Draw Attention of ASRE

Plastics, Steel, and Special Alloys Suggested For Use In Tubing

ST. LOUIS — Certain substitute materials for use in the refrigeration industry are now getting practical tests, and others are being given serious consideration by the industry's engineers, it was brought out at a "Substitute Materials Forum" held during the annual convention last week of the American Society of Refrigerating Engineers.

Most of the discussion centered about substitutes for copper tubing and copper and brass fittings. "Saran" the thermoplastic tubing developed by Dow Chemical Co., came in for considerable attention in the Forum. M. H. Tokach of Milwaukee, one of the discussion leaders, pointed out that experiments had illustrated that it could be used as refrigerant lines where no heat transfer effect is involved.

It is flexible, can be used with standard fittings, and is relatively resistant to chemicals and oils, he said.

HEAT TRANSFER PROBLEM

However, declared Mr. Tokach, it is difficult to find substitutes for copper where the heat transfer factor is involved. At the same time he urged that full consideration be given to substitutes for such parts as frames, bases, etc. where substitutes

for metals can be used without injury to the refrigerating efficiency of the unit.

Declaring that the situation with regard to metals "is most critical in copper and the copper alloys—which means valves, fittings, and connecting tubing to this industry," K. M. Newcum, vice president, Superior Valve & Fittings Co., said that the "best bet is to design to steel," even though there may be some difficulties—chiefly through corrosion.

Steel tubing such as that known by the trade name of "Bundywell" is suitable for flaring either in a single flare or double flare, said Mr. Newcum, and is best soldered with a 95-5 solder.

ABOUT PLASTIC TUBING

"Saran" thermoplastic tubing can also be flared, Mr. Newcum explained. The special fitting which Mueller Brass Co. is developing for this plastic tubing, said Mr. Newcum, is designed to permit the joining of two pieces of the tubing without exposing the metal fitting to the refrigerant.

Laboratory tests with "Saran," said Mr. Newcum have indicated that its weaknesses are a tendency to bulge and sometimes break at high temperatures, and to become some-

what brittle at very low temperatures.

Another substitute discussed by Mr. Newcum was "Tuballoy," an alloy which has been used successfully in water main work.

According to Mr. Newcum, steel unions, flare nuts, and tees are now being used for both copper and steel tubing up to 1/2 inch o.d. Above that limit in size soldered and brazed type joints are favored.

Also developed are compressor and service valves of forged steel or cast iron, the speaker said.

NEW COPPER ALLOYS

R. J. Thompson, Kinetic Chemicals chief engineer, also speaking at the Forum, described some new copper alloys that are highly resistant to corrosion, but expressed the fear that they may go on the critical list before they can be used actively as substitutes.

All development of plastics for use where the heat transfer medium is involved, should give due consideration to the solvent action of refrigerants and oils, Mr. Thompson stated.

However, he pointed out that corrosion must be thought of as the chemical action of the refrigerant—distinguished from the cleansing action of refrigerants that flush through impurities caused by oxidation or other factors.

Mr. Thompson suggested that standard and complete tests be used in testing the resistance of substitute materials to solvent actions—tests under stated conditions with specific various amounts of refrigerant, oil, and water combinations.

OPM Permits Plastics For Radios & Tubes

WASHINGTON, D. C.—Two new amendments to General Preference Order M-25, governing the supply and distribution of formaldehydes and the synthetic resins made from them, have been announced by the Priorities Division of OPM.

Amendment No. 3 places bases for radio tubes under Classification 1 of the permitted uses, as no suitable substitute for plastics for this purpose has been discovered. This classification means that deliveries of the resins for the production of bases are assigned a rating of B-4.

Amendment No. 4 assigns a preference rating of B-8 to deliveries of synthetic resins molding powder to radio manufacturers in the amounts required to produce molded cabinets for their existing inventories of radio chassis. Radio manufacturers who produce their own synthetic resins molding powder may use it in the amounts required for the same purpose.

All Power Curls In South Lifted As Result of Heavy Rainfall

WASHINGTON, D. C.—A heavy general rainstorm throughout the Southeast last week has now made it possible to remove all restrictions on power conservation in that area, it was announced by Donald M. Nelson, director of priorities. The rains have already averaged from 1 to 3 inches throughout the area, and thus have greatly increased the available supply of hydro-power.

The restrictions lifted at once include the "blackout" and the "freezing" of industrial power consumption to September levels. These have proved extremely effective during the critical period of shortage in holding power consumption within the capacity of the southeastern power systems.

'Don't Pin Too Much Hope on Plastics Yet,' Monsanto Official Cautions

ST. LOUIS—Plastics may not play so important a role as temporary substitutes in this war as they may as "permanent" substitutes after the war, declared G. C. Gress of the Monsanto Chemical Co. in addressing the annual convention of the American Society of Refrigerating Engineers here last week.

While granting that there might be some possibilities for substitute materials in such items as thermoplastic tubing, Mr. Gress in general thinks plastics will be "too tight" to be of much use to the refrigeration industry.

"Hemmed in by raw material shortages (caused by direct defense demands), unable to expand conversion plant capacities if raw materials were available, and pressed by the demands of established users, it is obvious that plastics are as scarce, if not scarcer, than some of the metals for which they are considered replacements," averred the speaker.

STILL UNPROVED

Furthermore, plastics haven't demonstrated that they stand up too well in the temperature ranges sometimes found in the refrigeration industry, Mr. Gress pointed out. The remelting point of some thermoplastics is as low as 140° F., although in other plastics it has been brought up to 190° F. What is being sought, said the speaker, is a plastic that will have a melting point above the boiling point of water.

After the war, said Mr. Gress, with increased capacity and improved molding equipment, there will be an abundance of plastics and at a lower cost.

"Both raw material and molding equipment developments point with increasing certainty to the future use of plastics for large molded articles," said Mr. Gress. "Envisioned as commercially practical are the molding of bathtubs, coffins, refrigerator cabinets and assemblies, automobile body sections, aircraft fuselage and wing sections, and the like."

But, to illustrate the development work that will be necessary, Mr. Gress declared that the biggest plastic piece developed by the injection molding method thus far was a household refrigerator evaporator door.

REFRIGERATION USES

H. E. Money, chief refrigeration engineer, Crosley Radio Corp., in commenting on the use of plastics in the refrigerator industry, following the talk by Mr. Gress, described the various uses in this way:

1. Door handles. Plastics in this case have eliminated die casting and chrome plating, cutting costs, and saving defense material.

2. Cold control dial. A similar use, with a molded plastic, and ingenious methods of adding the numbers and calibrations.

3. Door liners. Finished by spraying the plastic, as one would treat sheet metal. Use of plastics here have cut refrigerator door heat losses.

4. Ice cube trays. Considerable experimental work here, both in complete trays and in dividers. Slow freezing time and brittleness are possible objections.

There are two broad classes of plastic materials, Mr. Gress explained. First there are the thermosetting plastics, which under application of heat and pressure attain moldability. At the same time they undergo a chemical reaction which makes them an infusible solid and not subject to further plastic flow under re-application of heat.

The extensive family of thermoplastic materials are the longest established of all plastics. Thermoplastics are molded with application of heat and pressure, but unlike the thermosetting materials, continue to be moldable and subject to deformation on further exposure to heat.

The versatility frequently attributed to plastic materials is due in large part to the many factors which can be brought into play to change or modify the properties of a given material. In some plastics, modification of the basic structure is brought about by:

1. Variations in molecular weight and distribution
2. Variation in chemical composition
3. Variation in physical treatment.

The introduction of plasticizers which modify or change the properties of a plastic is a second method. The nature of the plasticizers and the amount are the determining factors.

In considering the relation of plastics to the commercial refrigeration industry, a review of some of the factors which have influenced their present use in refrigeration equipment may be helpful.

REASONS FOR USE

Plastics have been used in refrigeration because they possess one or more of these characteristics:

1. Superior dielectric strength
2. Superior mechanical strength
3. Lower costs
4. Chemical resistance
5. Corrosion resistance
6. Color or transparency
7. Low heat transfer
8. Decorative qualities.

The last is cited as a use reason as it is generally recognized that in domestic refrigerators, appearance is a factor to be considered by engineers second only to performance.

It was not until the introduction of polystyrene in the form of a plastic molding compound that any large-scale use of plastics in refrigerator interiors was feasible, Mr. Gress stated.

Progress in applying these advantages for better looking and more efficient designs came fairly rapidly, until in 1941 models almost every important make had at least one sizable polystyrene molded part.

In its initial development, and up to and including its use in 1941 domestic refrigerators, the prospect of metal shortages played little or no part in the growth of interest in polystyrene plastics, the speaker said.

POINTS FOR POLYSTYRENE

Of the reasons for its selection a few are worth special mention. Notable among these is the performance of polystyrene molded parts at subnormal temperatures. In contrast to most other thermoplastics, there is no appreciable loss in toughness of the molded plastic parts as temperatures are decreased.

In fact, curves which have been plotted for molded refrigerator parts indicate an actual gain in impact and tensile strength at 0° F. over 70° F. In the case of most other thermoplastics, embrittlement of varying degrees occurs at lowered temperatures.

It is obvious that dimensional stability is important for almost any plastic use in refrigerating equipment. Molded polystyrene is noted for high dimensional stability and consequent freedom from warpage.

In general, warpage of a part

(Concluded on Page 25, Column 1)



HEAT TRANSFER EQUIPMENT

Air Conditioning, Heating and Cooling Coils • Water Coils • Commercial and Industrial Coils • Unit Coolers • Industrial Brine Spray Coolers • Industrial Dry Coolers • Electrical Defrosting Low Temperature Coolers • Evaporative Condensers • Evaporative Diesel Coolers • Evaporative Transformer Coolers • Heat Exchange Equipment •

MARLO COIL COMPANY
6135 MANCHESTER • SAINT LOUIS, MO.

★ ★ ★ **KEEPING COOL** ★ ★ ★

Under Fire is the Army's Job!

... keeping them Cool is **IDEAL'S** Job!

★ **IDEAL BEER COOLER COMPANY** ★

2953 EASTON AVENUE ★ SAINT LOUIS, MISSOURI

(Concluded from Page 24, Column 5)

ACID RESISTANCE

INSULATING POSSIBILITIES

It is interesting to note that according to this data polystyrene is more than twice as efficient as the material which most closely approximates it (cast phenolic) and compares well with the specialty insulating material such as felt, corkboard, and expanded rubber, all of which depend on trapped dead air spaces

Certain urea plastic applications

DIELECTRIC PROPERTIES

INGREDIENT SHORTAGES

The order divides uses of plastics into four categories. In order of preference they are:

ESSENTIAL MATERIAL

The resulting plastic compound will use less phenol and formaldehyde through the incorporation of lignin, and thereby may have properties somewhat below the type of plastic generally accepted as a minimum standard for thermosetting materials by established users. Nevertheless, lignin extended materials will be

NEW USES POSSIBLE

Melamine resin plastics, comparatively new, will be important factors for tomorrow in many fields. They will probably combine some of the desirable properties of both thermoplastic and thermosetting materials.

An open letter to Uncle Sam

A. H. EUSTIS, PRESIDENT
F. A. EUSTIS, SECY. & TREAS.
131 STATE ST., BOSTON, MASS

CABLE ADDRESS: VIRSMELT, NORFOLK
TELEPHONE: PORTSMOUTH 4000

VIRGINIA SMELTING COMPANY
Liquid Sulphur Dioxide—Methyl Chloride
WEST NORFOLK, VIRGINIA

December
10th
1941.

Uncle Sam,
United States of America.
Dear Uncle Sam:
If you th

Uncle Sam,
United States of America.

Dear Uncle Sam:

If you think "Virginia" Refrigerants are needed FIRST on the ships that guard our shores, in the mills and factories that are making bitter pills for Hitler, or, in the bases, camps and outposts that shelter our soldier sons - "Virginia" will deliver the goods.

Think our products, our special health, the

If you think our products, our special skills can better serve to bolster the health, the morale, the vitality of our people, America's Home Line of Defense, if you want to keep civilian supply lines intact, distribution equitable - if that is how we can help the most - "Virginia" will deliver the goods.

Half-way measures don't count this time; we're seeing you through to the finish.

We want to work for you, not worry you.

Yours sincerely,
VIRGINIA SMELTING COMPANY.

rh1/jh
CC:

FOURTH ANNUAL ALL-INDUSTRY
REFRIGERATION and AIR CONDITIONING
EXHIBITION EQUIPMENT, PARTS, MATERIAL,
SUPPLIES AND ACCESSORIES — JANUARY 18-19, 1954
STEVENS HOTEL, CHICAGO

VIRGINIA SMELTING CO.
WEST NORFOLK, VIRGINIA

SQUARE D IN REFRIGERATION



FOR HIGH SIDE FLOAT SERVICE

SQUARE D
CLASS 9160
BOOSTER VALVES

With a high side float valve in the pilot circuit, the Class 9160 capacity booster valve offers an efficient and economical solution for the larger installation of this type. Write for bulletin giving additional details as to capacity and other applications.

DO IT ALL WITH SQUARE D



SQUARE D COMPANY • REGULATOR DIVISION • DETROIT

Helping an Industry Grow

U.S. Production of 'Foreign-Type' Cheeses Speeded By Modern Refrigeration

ST. PAUL—Refrigeration equipment especially designed to reproduce as nearly as possible the ideal curing conditions for blue vein cheeses provided by nature in the sandstone caves along the banks of the Mississippi river near here has been installed by Westerlin & Campbell of St. Paul in several Wisconsin cheese plants.

With a 50-million-pound reduction in America's annual cheese imports due to war conditions, plus increasing exports of American-made cheese to Great Britain, America's cheese industry has been expanding by leaps and bounds during the last couple of years. And with this stepped-up production has come an increased demand for the type of refrigeration equipment needed in cheese processing and curing.

MINNESOTA IS CENTER

Largely due to the research work carried on by the University of Minnesota's dairy division, Minnesota now is probably the biggest center in America for the production of blue vein cheeses, those cheeses with the greenish blue mold, such as Roquefort, Danish Blue, or French Blue. About 6 million pounds of this type of cheese are now consumed annually in the United States. It is estimated that Minnesota alone will produce 2 million pounds of blue vein cheese this year.

Boon to Minnesota's blue vein cheese business was the accidental discovery about 15 years ago by Prof. W. B. Combs, of University of Minnesota's animal husbandry department, that the sandstone caves along the Mississippi offered almost perfect natural curing conditions for this type of cheese, i.e., about 50° F. the year around, with constant relative humidity of 95%.

Experimentation with foreign-type cheese making began slowly after this discovery, but has been greatly stepped up since the start of the

present war. The three Minnesota firms now producing this type of cheese utilize the sandstone caves near St. Paul for curing purposes.

To duplicate as nearly as possible by mechanical means the conditions existing in these caves was the job which the Westerlin & Campbell organization set out to perform for several Wisconsin cheese companies.

The installation for Stella Cheese Co. in Amery, Wis., the first one made, reveals the large amount of coil surface necessary to hold down the differential between coil surface temperature and room temperature in order to obtain close control of the high wet-bulb conditions needed for curing.

The curing room in this plant measures 48 x 33 feet. It is cooled by 16 flash coils, each 24 x 123 x 13 inches in size. The coils are mounted over the aisles, with each bank of two coils having separate thermostatic control.

CURING ROOM EQUIPMENT

There are in all 4,400 sq. ft. of coil surface. Coil temperatures run around 42° F.; room temperatures are held at about 45° F. The equipment accurately meets design conditions of 85 to 90% relative humidity. A 3-ton "Freon" condensing unit is used.

Inasmuch as the manufacture of foreign-type cheeses bids fair to become a permanent industry in the north central states, the dairy division of the University of Minnesota recently installed six mechanically refrigerated storage rooms, each with a capacity up to 2,000 pounds, for the purpose of continued studies of the possibilities of manufacturing other foreign types of cheese.

Named Store Buyer

MIAMI, Fla.—Lee Moses has been appointed buyer for major appliances at Richards department store here.

Repair Parts Exempt From Regulations On Credit Terms

NEW YORK CITY—In further bulletins clarifying the regulations on instalment selling, the Federal Reserve Board has ruled that any down payment in excess of the required amount may not be applied as part of the down payment on a later purchase, and that repair parts for appliances ordinarily would not come within the scope of the regulations.

The board also has ruled that the classification "mechanical refrigerators" does not include electrically operated portable unit for cooling and dispensing drinking water.

The ruling regarding down payments follows:

"A purchaser buying a listed article makes a down payment in excess of the amount required by the regulation. May he be permitted later, in purchasing a second listed article, to apply any part of the down payment on the first article as the required down payment on the purchase of the second article? Ans.: He is not permitted to do so."

Regarding replacement or repair parts for articles that come within the scope of the regulation, it was stated that the regulation does not include such parts, with the one exception that if the merchant knows or has reason to know that any purchase is part of a scheme to acquire a complete listed article by purchasing separate pieces, then he is required to treat the credit extended as if it covered a listed article.

Regarding merchandise put in homes "on trial," it was ruled that the sale was to be dated on the day on which the customer informed the merchant of his decision to purchase the article, provided this decision was made within 60 days after the article originally entered the "trial" period.

With reference to the classification "cooking stoves and ranges with less than seven heating surfaces," the board has ruled that a warmer drawer in electric ranges is not considered a heating surface.

Regarding financing limits on ice refrigerator sales, it has been ruled that the same general principles apply as in the case of mechanical refrigerators. Units of less than 12 cu. ft. capacity are included, no matter what the use to which they are to be put, unless their design and construction are such that they are clearly usable only for commercial purposes.

The classification "radio receiving sets, phonographs, and combinations," it was ruled, does not cover coin-operated phonographs.

Potential Life-Saver

Wartime Need Spurs Development of Air-Cooled Drying of Blood Plasma

DETROIT—A new air conditioned process for dehydrating blood plasma so that it can be stored in powdered form for an indefinite period of time until needed for use in effecting blood transfusions has been developed and put into use here by Dr. F. W. Hartman of Henry Ford hospital.

Brought to the attention of physicians all over the country at American Medical Association conventions, this process gives promise of being particularly valuable during this present war period when there is such a constant demand for large amounts of blood plasma for transfusion purposes.

SPEED TRANSFUSIONS

Speed of transfusion work has previously been handicapped because of the fact that a blood donor of the proper type always had to be located at the moment of emergency. Even with long lists of professional donors, and the best facilities available, many hospitals have lost patients while the donor was being rushed to the hospital.

At present the army is testing its members for a proposed list of blood-type donors for quick service in battle emergency, but desiccated plasma may eliminate the need for such action.

Here is how Dr. Hartman's system works. Blood samples are taken from donors and placed in containers with sodium citrate to prevent coagulation. These samples are then stored in a low-temperature cooler until the red corpuscles sediment from the mass, leaving a clear amber-colored solution known as plasma.

DEHYDRATION UNIT

This plasma, which contains all the necessary elements for the majority of blood transfusions, is next drawn from the top of the sterile glass containers into cylindrical cellophane tubes or bags about 30 inches long and 8 inches in diameter.

Dehydration is accomplished by a Bryant gas-fired dehumidifier with a capacity of 500 c.f.m. Silical Gel is used as the dehydrating agent. On top of this dehydrating unit is a box large enough to accommodate two sets of wire-spoked wheels mounted on a shaft and rotated by a 1/4-hp. motor. Between these two wheels the tubes containing fluid plasma are arranged parallel to the axle on which the wheels are mounted.

The box enclosing the wheels is

baffled so that dry air leaving the dehumidifier flows over a cooling coil fed with either cool water or brine. Cooling medium for this coil is held at the desired temperature by a mechanical refrigerating unit. Dehumidified and cooled air thus moves across the rotating wheels before being forced into the drying unit.

Moisture from the plasma passes through the cellophane tubes by osmosis, thus placing the wetted outside surface of the tube in contact with the dry air current. Air circulates constantly, being dried at one point in the cycle by the Silical Gel trays before passing again over the tubes of plasma.

Result of this process, which requires approximately four hours, is an amber-colored powder in crystalline form. This powdered plasma can be stored indefinitely in sealed vacuum jars without overly careful handling. When the blood is needed for a transfusion, the powdered plasma is mixed with sterile water and the transfusion carried out in the normal way.

COOLING ESSENTIAL

To best protect the delicate plasma while it is being dehydrated, the cooling air must be delivered at about 15° to 25° C. Experiments are still being carried on in an effort to arrive at the exact temperature for best results.

The dehydrating unit in use at Ford hospital here is approximately 58 inches high and 42 inches square.

Among the advantages of this system of blood preservation is the fact that powdered plasma can be stored without refrigeration and can be handled and transported readily at low cost. Outstanding advantage, however, is the fact that this plasma can be used with any patient, without regard to blood type.

Because of the potential importance of this process to the nation's national defense program, Dr. Hartman is hastening to complete plans for practical production, on a reasonably large scale, of dehydrated plasma.

Philco Promotes Hardy

PHILADELPHIA—Larry F. Hardy has been named manager of the home radio set division of Philco Corp. Mr. Hardy, who has been connected with Philco since 1932, will be in charge of the merchandising of all Philco home radios, including radio-phonographs, consoles, table models, and small sets.



MODERN ships call for modern sailors . . . and modern sailors call for modern water cooling equipment. The modern scuttlebutt is a "Day & Night" Storage Type Water Cooler, specially designed for operation aboard ship or for installation ashore, and built to Navy Specifications.

"Day & Night" also supplies Storage Type Water Coolers to meet U. S. Army Specifications. Many "Day & Night" Coolers are now serving both the Army and the Navy in camps and stations ashore and on ships that sail the Seven Seas . . . making a record for dependable, economical service.



MODEL NU-2547-5
U. S. Navy (63-CA) COOLER NO. 30
"Day & Night" Coolers are also made to meet
U. S. Army Specifications.

Marketed Through The Established Refrigeration Trade

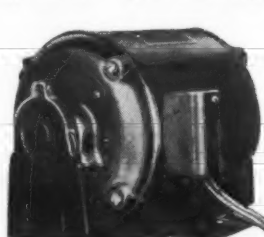
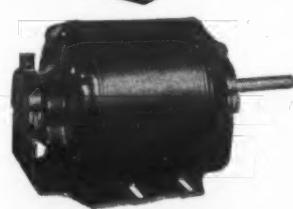
DAY AND NIGHT MANUFACTURING CO.
2320 EAST EIGHTH STREET • LOS ANGELES, CALIFORNIA
FACTORY REPRESENTATIVES
NEW YORK • CHICAGO • DALLAS • DECATUR, GA.
A. C. Hoyer, 492 Broadway • Marc Shantz, 565 Washington Blvd. • Leo J. Freitas, 4408 Stanhope St. • J. E. Parker, 228 Second St.
Warehouse Stocks at Convenient Shipping Points

Thousands of **WAGNER Motors**
ARE NOW GIVING DEPENDABLE SERVICE ON REFRIGERATING
AND AIR CONDITIONING EQUIPMENT IN DEFENSE INDUSTRIES,
ARMY CANTONMENTS, NAVAL STATIONS, ON SHIPS, ETC.

FOR QUICK DELIVERIES
ON MOTORS FOR
DEFENSE PRODUCTION
SPECIFY
WAGNER

Our Country has sounded the call for equipment and machinery for national defense. Equipment manufacturers everywhere are answering that call—and refrigerating equipment manufacturers are no exception. Already thousands of refrigerating units are doing their part in the defense program—a large percentage of these units are powered by Wagner motors, and for good reasons, too. (1) Established reputation for efficiency and de-

pendability, (2) complete line—the right motor for every type of equipment and all service conditions, (3) quick shipments to handle rush defense orders, (4) large plant capacity to handle any order, large or small, (5) 50 years manufacturing experience, (6) convenient service facilities through 25 branches . . . six good reasons why you should look to Wagner for motors for all your defense production.



Type M, Shaded-Pole Fan Motors (1/12 to 1/30-hp)—ideally suited for fan and blower drives where the fan or blower is mounted directly on the motor shaft.

Type RP, Squirrel-Cage (1/16 to 400-hp)—because of simple construction are low-priced, easily installed, and exceptionally sturdy and dependable.

Type RA, Repulsion-Start-Induction (1/8 to 15-hp)—the ideal motor for heavy duty applications such as compressors, pumps, smokers, etc.

Type RK, Capacitor-Start Induction-Run (1/8 to 3/4-hp).

Wagner Electric Corporation

6400 Plymouth Avenue, Saint Louis, Mo., U.S.A.

25 SALES AND SERVICE
BRANCHES Conveniently
Located Throughout the Country.
Trained Sales-Engineers are always
ready to assist you in selecting motors
to meet your particular requirements.

MOTORS • TRANSFORMERS • FANS • BRAKES

Announcing THE 1942 NATIONAL REFRIGERATOR MARKET REPORT

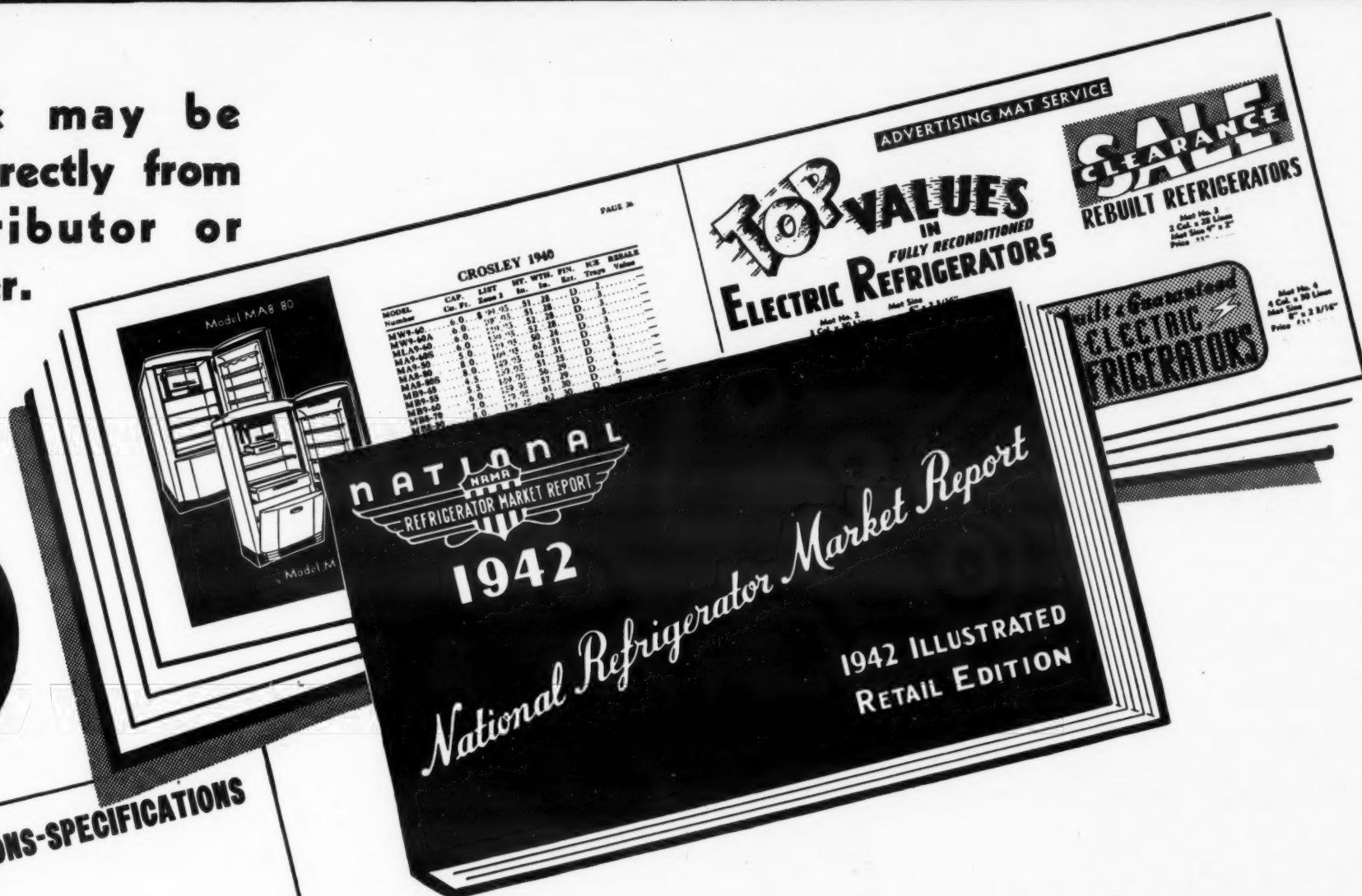
Latest Official Data

★ THE BLUE BOOK OF REFRIGERATOR TRADE-IN VALUES ★

This book may be obtained directly from your distributor or manufacturer.

LIST PRICE

\$3.50
EACH



★ COMPLETE ILLUSTRATIONS-SPECIFICATIONS

★ LISTS OVER 2200 MAKES AND MODELS

★ ASSIGNS FAIR TRADE-IN VALUES

★ ADVERTISING MAT SERVICE

★ TELLS HOW TO RECONDITION TRADE-INS

★ FREE DEALER SERVICE BUREAU

The Automobile industry has used a "Blue Book" of Trade-Ins successfully for 27 years. Profit by experience and use the "Blue Book" of Refrigerator Trade-In Values.

THE TRADE IN "BLUE BOOK" INSURES PROFITS ON SALES BECAUSE

1
It lists and illustrates over 2,000 models of domestic type refrigerators so that they may be readily identified by customer and dealer. Thus all guesswork as to age or model is eliminated.

2
It gives a fair, conservative value to each model listed, and thus eliminates the danger of excessive allowances.

3
Its neat and complete make-up impresses the customer — and in general its appearance and lists serve as an effective antidote for the customer's inflated sense of value of his "trade-in." SEEING IS BELIEVING!

4
Its trade-in appraisal values are designed to let the dealer MAKE A PROFIT on his replacement sales.

5
It contains a complete editorial section which tells the dealer how to trade refrigerators profitably. How to advertise and re-sell refrigerator trade-ins and includes a complete mat service.

NATIONAL REFRIGERATOR MARKET REPORT, INC.

3028 HUNTING PARK AVENUE

PHILADELPHIA, PA.

ONE TRADE-IN PROPERLY EXECUTED ON THE BASIS OF PRICES ESTABLISHED IN THE BLUE BOOK WILL PAY FOR THE COST OF A BOOK MANY TIMES OVER.

DEFENSE

Dual Prices Suggested For Scarce Metals To Permit Operation of High-Cost Mines

3-Cent 'Premium' Payment Proposed

NEW YORK CITY—Dual prices on scarce, vital metals, which would not interfere with the government's anti-inflation and anti-profiteering programs, but would permit operation of high-cost mines to produce needed materials, have been suggested to the government by Alfred Rheinwein, head of a construction company here and vice president of the Building Congress, which represents construction trades and professions in the New York City area.

Ceilings on copper and other scarce materials would be left at their present levels, but premiums would be permitted for high-cost mines which cannot afford to operate under the present rigid ceilings, according to the dual price proposal.

In actual operation, if a company which needed copper were unable to obtain any, it would pay three cents a pound into a government pool and buy copper from a high-cost mine. The government would then compensate the high-cost mine with money from the pool.

By this method, Mr. Rheinwein believes, there would be no change in the ceiling for those mines which can profitably produce 12-cent copper, but the "15-cent" mines would be enabled to operate.

Dual prices would also, according to Mr. Rheinwein, allay the government's fears that an increase in ceiling prices for raw materials would be pyramided, with the ultimate consumer being forced to pay unnecessarily high prices. The dual price premium would merely permit the high-cost mine to operate, and there would be no need for "middle men" to increase their prices, according to Mr. Rheinwein.

Purely civilian use of copper or

other materials under a dual price setup would involve only a payment of a fixed sum per pound above the original cost. A builder could certify that he was willing to pay an extra three cents a pound on copper to complete a building for which no priorities would be issued. The builder would then pay three cents a pound into the government pool, which would, in turn, pay the high-cost mine which supplied the copper.

Mr. Rheinwein has headed a drive for easing the order of the Supply Priorities and Allocations Board which restricted materials for the building industry. He contends that SPAB has been unrealistic and hasn't considered sufficiently the long-term effects of the order.

Secret Air Cooler For Stratosphere Aircraft Developed By Fedders

BUFFALO—A secret type of air cooler, known as an intercooler, for turbo-superchargers for stratosphere flying of military aircraft, is being developed and soon will be placed in production in the plant of Fedders Mfg. Co., Inc. here.

Fedders executives said that the United States rates the turbo-superchargers with the Norden bomb-sight as the two most closely guarded ordnance secrets. "Defense production represents approximately 50% of our output, and this should be increased to 80% before the end of 1942," Vice President Theodore C. Fedders announced.

Applications For Priorities Clear OPM Rapidly

NEW YORK CITY—The Priorities Division of the Office of Production Management has so streamlined its system that applications for priorities are now being cleared much more rapidly, and complaints over the operation of the priorities system are being answered much more quickly, L. Edward Scriven, director of the Priorities Field Service, said last week in an address before the priorities committee of the Commerce and Industry Association of New York.

Even when virtually all important materials are controlled by allocations, priorities still will be necessary to direct the flow of finished products, Mr. Scriven said. For this reason, he continued, business men should continue to familiarize themselves with all phases of priorities.

There has been a lot of misunderstanding on the subject of allocations, Mr. Scriven declared, and the impression has grown that priorities will be replaced by allocations. However, this is not true, he said. Eventually we will have a mandatory or allocation control of practically all raw materials, he continued, but we will still have preference rating certificates to direct the flow of finished products. This two-way control is now being developed.

Mr. Scriven announced the appointment of Sydney Hogerton as district manager of the New York office of the Priorities Field Service, which is now at 25 Broad St. but will soon be moved to 122 East 42nd St. Mr. Hogerton, who has been general manager of the long lines department of American Telephone & Telegraph Co., in charge of engineering, construction, maintenance, overseas service, etc., will handle priorities problems posed by business men in the New York area.

Latin - American Nations Offer U. S. Priorities On Vital Metals

WASHINGTON, D. C.—Under terms of a war-trade agreement virtually completed between the United States and Peru, that country will undertake to make available to the U. S. virtually her entire supply of copper, vanadium, and lead. Negotiations with Chile, Bolivia, and Argentina are also under way, which will give this country priorities on several materials essential to the defense program.

Pending conclusion of the agreement, Bolivia has agreed to sell to this country her entire supply of tungsten, and all the Bolivian tin that is not now going to the British; Chile has contracted to export to us every year about 500,000 tons of copper, nearly her entire supply, and most of her manganese; and Argentina has promised to let us have half of her tungsten.

Mexico and Brazil have guaranteed to export all their strategic materials to the United States, to expedite this country's defense program and to keep these materials from going to Germany, Italy, and Japan.

Packaging Material Not Obtainable Through P-22 Rating Order

WASHINGTON, D. C.—No packaging material may be obtained through Preference Rating Order P-22, known as the Maintenance and Repair order, emphasizes the Contractors Branch of OPM.

Packaging material is not included in the order and no preference rating under it can be applied for obtaining packaging material, the OPM branch said.

Packaging material includes bags of all types, barrels, bottles, boxes, cans, containers, coopeage, cores, crates, cartons, cases, tubes, labels, wrappers, wrapping papers, liners, envelopes, cushioning or protective packing material, or their component parts made of paper, fabric, glass, plastic, metal, or any other material.

Returnable packaging material, as well as that used only one time, comes under this ruling.

OPM To Conduct Public Hearing on Copper Situation as Congress Starts Inquiry

WASHINGTON, D. C.—Charges by Rural Electrification Administration last week that the "copper situation smells to high heaven" set off two secret congressional investigations into the whole question of copper production and priorities and culminated in the Supply, Priorities, and Allocation Board's ordering OPM to hold public hearings on the possibilities of increasing copper production.

Donald M. Nelson, OPM director of priorities and executive director of SPAB, David Uebelacker, new head of the OPM copper branch, and John A. Church, chief consultant, testified on increasing of copper production before a House appropriations sub-committee last week as the first step in the congressional investigation.

High officials of OPM and SPAB, copper company executives, and union heads are to be called as witnesses by the Truman investigating committee of the Senate, which is examining the whole national defense program. Hearings were scheduled to start Dec. 9.

OPM SELECTS DAVIS

OPM has selected Chester C. Davis to head the committee which will conduct the public hearings. No date has been set for these hearings, but OPM announces that they will be held as soon as practicable. Mr. Davis, who is president of the Federal Reserve Bank of St. Louis, was formerly general counsel for the Agricultural Adjustment Administration.

SPAB officials declared that SPAB has studied the copper production closely with OPM and feel that all questions which could have been settled have been settled. Because many conflicting stories and reports on copper production are current today, SPAB has requested these public hearings on all proposed methods of increasing copper production.

In his testimony before the House sub-committee last week, Mr. Nelson declared that the government would soon take steps to end hoarding and bootlegging of copper which, he said, were interfering with the defense program.

The Senate investigating commit-

tee, it is understood, will endeavor to obtain answers for the following seven questions:

- (1) Has copper production in this country reached its peak?
- (2) Can production be expanded by 25 to 75%, as claimed by some Washington circles?
- (3) Are copper mining companies holding back exploitation of low cost deposits, as union leaders claim?
- (4) Has production reached a point of diminishing return and would the forcing of output to greater volume result in excessive waste of high grade ore?
- (5) Are government sponsored power projects being starved while OPM is allocating copper to private utilities?
- (6) Is the priorities system "needlessly" choking "little business?"
- (7) Was approximately 57,000 tons of copper allocated to private utilities during October while REA received only 2,500 tons for its finished lines since August?

NEW COPPER SMELTERS

In connection with testimony given before the House sub-committee by John A. Church, senior copper consultant for OPM, Representative Charles H. Leavy of Washington suggested that the government build new copper smelters to aid independent producers.

Mr. Leavy had asked Mr. Church's opinion on the advisability of government's "divorcing itself" from the three major producers and building domestic smelters "which would be thrown open for use of any producer."

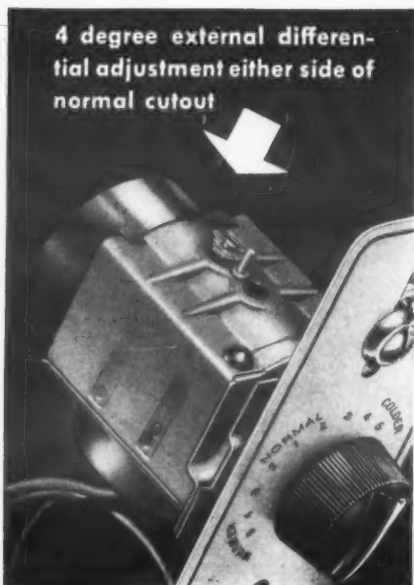
"A smelter doesn't make copper—what is needed is more copper mining facilities," asserted Mr. Church. He contends that the industry is operating at its true present capacity, with all available labor being used.

War Dept. Gives Fedders \$2,319,974 Order

BUFFALO—A \$2,319,974 War Department contract for metallic link belts has been awarded to Fedders Mfg. Co., Inc.

COME TO THE EXHIBITION

IN '42
THERE'S A JOB TO DO!



Cutler-Hammer Refrigeration Replacement Control with OUTSIDE DIFFERENTIAL ADJUSTMENT

- ✓ Adjustable Mounting Brackets
Maximum Mounting Centers . . . 4 3/16
Minimum Mounting Centers . . . 2 3/16
- ✓ Adjustable Cutout Feature—Differential can be increased 4 degrees by turning indicator in "Hi" direction and decreased 4 degrees by turning in "Lo" direction.
- ✓ Adjustable Range—Turning screw clockwise lowers settings and counter-clockwise raises settings.
- ✓ Operating knob can be adjusted to meet various evaporator scale settings. New knob is ideal for varying shield thicknesses. Makes this control adaptable to wider range of replacement jobs.
- ✓ Handles 90% of your Single-Button Replacement Needs.



NOW—AS NEVER BEFORE—you cannot afford to miss the All Industry Refrigeration and Air Conditioning Exhibition at Chicago. In '42, there's a job to do... for every man connected with the industry. There'll be more emphasis on repairs and replacement parts in 1942. More than ever your job will be to see that the installations that are now in, work right and keep on working. That is your job in the nation's all-out defense effort. Do your part. And be prepared to do your part better... by attending the 4th Annual All Industry Refrigeration and Air Conditioning Exhibition. The place is the Hotel Stevens in Chicago. The time is January 12 to 15, 1942. Make it a date. In '42, there's a job to do... for every one of us. CUTLER-HAMMER, Inc., 1362 St. Paul Avenue, Milwaukee, Wisconsin. Associate: Canadian Cutler-Hammer, Ltd., Toronto.

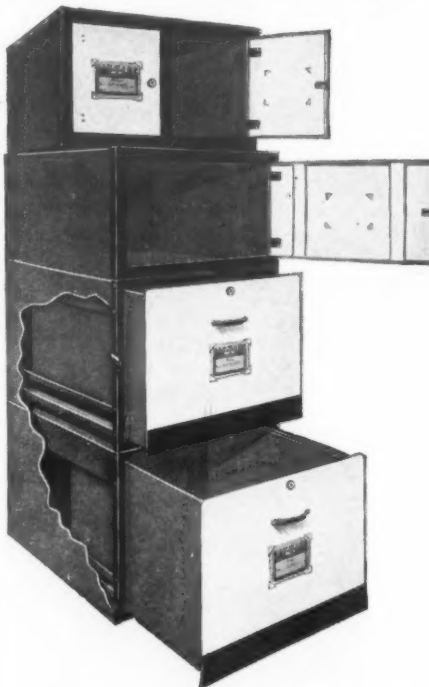
BE SURE to visit C-H Booths 513-515. 4th All Industry Refrigeration and Air Conditioning Exhibition, Chicago, January 12-15, 1942



The Nation's Health Defense

Today the preservation of fresh foods is to a marked degree contributing to the health of the army of producers. Well-balanced and appetizing meals are essential to all, whether in the military, the factory or on the farm.

The preservation problem for the civilian population is being solved in each community by making available storage capacity through the medium of food storage lockers. In them garden vegetables and fruits as well as meat products can be stored and preserved, so as to be made available in their fresh-like form during the time when their need is greatest and the supply is either limited or unavailable.



Master Refrigerated Lockers are doing "their bit" for this all important need by building for Locker Plants the necessary, dependable food storage facilities.

Fresh frozen products retain more of their original flavor, color and texture when stored in a Master Refrigerated Locker because Master builds into them a new standard in sanitation—protection against odors, dehydration, etc.

Investigate—whether you are at present operating a locker plant or contemplating the building of one, you should have the facts about Masterbuilt Lockers. Write for them. Learn why Master Lockers not only contribute to the present health defense but the future as well.

Endorsed by and sold only through distributors of refrigeration and insulation.

See Our Exhibit At The All Industries National Show, Chicago, Jan. 12-15, Booth 201

MASTER REFRIGERATED LOCKER SYSTEMS, Inc.
121 Main Street
Sioux City, Iowa

Over 250,000 Masterbuilt Lockers in Use

Replica of Airliner Hides Conditioner That Cools Hotel's Cocktail Lounge



This plaster replica of a Douglas airliner helps conceal a 30-ton Airtemp conditioner which cools the new Flagship cocktail lounge and restaurant in Dayton's Miami hotel. Propellers are genuine (rejects).

DAYTON, Ohio—A 30-ton Chrysler Airtemp air conditioner concealed in the fuselage of a decorative plaster Douglas airliner built right into the ceiling cools the new Flagship cocktail lounge and restaurant recently completed in the Hotel Miami here.

Built of decorative plaster applied over metal lath affixed to U-shaped channel irons in the ceiling, the plane replica epitomizes Dayton's importance as an air center.

The plane has a wingspread of 81 feet, with wings dropped 2 feet on hangar rods. Motor nacelles are mounted with actual three-blade propellers, rejects from a Dayton factory. The actual landing gear encloses the entrance to the room, while a smaller landing gear set makes a rail around the orchestra. The plane which is finished in silver, is fitted with actual landing lights and controls.

The air conditioner, which feeds cooled air through Anemostats along

the ceiling behind the wing, is a 30-ton package unit concealed partially in the fuselage of the plane, with controls and a service areaway in the false ceiling over the room.

Delivered cooled air in "mushroom" fashion over the ends and center of the room, it will keep temperature at 80° F. It is equipped with smoke exhaust fans concealed in the ceiling. One Anemostat is located directly over the entrance, for the quick-cooling impression made upon people entering from the street.

The room seats 230 persons. A 16-stool bar with two Airtemp refrigerated mixing stations and six 72-bottle dry-storage boxes from Hussmann-Ligonier, is at the front.

Aviation murals decorate the walls. Waitresses are dressed as airline hostesses, while busboys wear the white overalls of airplane mechanics. Business has been \$3,000 per week since opening.

Douglas Aircraft Orders New York City Hit By 26 Additional Systems Shortage of Water

LONG BEACH, Calif.—In the extension of its bomber production facilities here, Douglas Aircraft Co. has awarded a contract for 26 separate air conditioning systems to York Ice Machinery Corp., supplementing a previous contract for 33 York systems in the original plant.

The new windowless building is constructed with a series of bays, each air conditioned by a separate unit, so arranged that damage to any portion of the plant will not affect the operations in adjoining sections. To conserve floor space, the air conditioning equipment is located on platforms suspended from the roof.

Refrigeration system for air conditioning Douglas' bomber assembly plant at Tulsa, Okla. also is being furnished by York.

NEW YORK CITY—In the face of a serious shortage of water, city residents have been asked by Patrick Quilty, commissioner of water supply, gas, and electricity, to cut their consumption to the lowest level.

Property owners were asked to repair all leaking fixtures in their premises, and city departments asked to cut their use of water. Mr. Quilty said the present shortage, the result of long dry spells, was more serious than that of 1939, when water curtailment extended to users of air conditioning equipment.

Present depletion of the city's supply amounts to 156 billion gallons, and the city's storage reservoirs in the Catskill and Croton mountains reportedly have dropped to extremely low levels.

Weirton Conditions New Asphalt Mastic Board Designed Steel Laboratory For Ductwork Unaffected By Priorities To Assist Test Board Can Be Formed Into Various Shapes

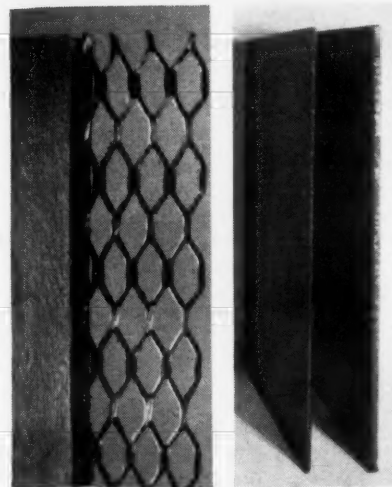
WEIRTON, W. Va.—To assure accuracy and uniformity in laboratory tests its chemists conduct for close control over steel making, the Weirton Steel Co. here has constructed an air conditioned laboratory building.

Chemists and metallurgists keep an accurate check on the whole steel making process, running off tests on raw ingredients, such as coal, coke, iron ore, pig iron, and limestone, before production starts and checking the process at intervals in the various stages of fabrication.

The Quality Control building, as the laboratory is known, is air conditioned with a system designed to hold both temperature and humidity within close limits all year around. Cooling is supplied by a 50-hp. Airtemp radial compressor.

This laboratory is used extensively by Weirton Steel to help produce steel designed for a particular purpose. Specialists occasionally visit a customer's plant to study his needs and prepare specifications for a special steel.

Following analyses of the raw materials needed for the particular steel, the laboratory makes an accurate check on each "heat" in the open hearth furnace. Metallurgical inspectors look for irregularities which may occur in the process, as well as examining the chemical and physical characteristics of the slag



(Left) Re-inforced asphalt mastic board designed for use as ductwork. (Right) Standard asphalt board of 1/16 and 1/8-inch thicknesses.

and steel. When ingot molds are poured, final open hearth examinations of each "heat" are made.

In the air conditioned laboratory are located special machines for sample pickling, tensile strength tests, heat treating, welding, normalizing, and annealing. To show grain and composition, microphotographs are taken of all types of steel.

CHICAGO—A new asphalt mastic board, manufacture of which is not affected by priorities, has been introduced by Keystone Asphalt Products Co., 43 E. Ohio St. here, for use as ductwork in air conditioning, warm-air heating, and industrial air blower systems.

As no "critical materials" are involved in its production, manufacture of the new product will not be limited by requirements of the national defense effort, it is thought.

Unlike asphaltic building boards, the product is not a fluxed oil sheet, but is composed of a high melting point asphalt in combination with fine mineral aggregate sealed between dry, non-bleeding liners which are claimed to provide a water-proof, rigid, non-warping board.

The board, which can be formed into various shapes, is said to resist both acids and alkalis. It is available in thicknesses from 1/16 to 1/8 inch, widths up to 48 inches, and in any desired length. It is black in color, and will readily take a surfacing finish, it is claimed.

A reinforced sheet made with a center core of expanded metal laminated between sheets of asphalt mastic board has also been introduced by the Keystone company. This product is said to combine the properties of the regular mastic board with the tensile strength added by the metal core.

FAMOUS LIFE LINES



1 THE PANAMA CANAL, life line of the great two ocean navy we are building, can carry the entire fleet from one ocean to the other in forty-eight hours. Here the aircraft carrier, U.S.S. Lexington, is passing through.



2 THIS MEDIUM TANK'S life lines —its oil lines, fuel lines, conduits —are made from various types of Bundy tubing, standard for these uses on most of Uncle Sam's mechanized and motorized equipment.

WHEN MAKERS of tanks and half-tracs and "jeeps" and "beeps"—or any of the dozens of other types of motorized equipment for the army—think of tubing, they naturally think of Bundy.

For the automotive industry, from which these great new defense industries sprang, has long recognized Bundy tubing as standard for carrying lubricants and fuel or for transmitting hydraulic pressures. Among makers of refrigeration equipment, too, and of machine tools, Bundy tubing is widely used because of its strength, its ductility, and its resistance to vibration fatigue.

Other Bundy tubing is going into primer lines for aircraft and marine engines, into telescopic radio aerials, into every type of refrigerating and gas heating appliance used by the army and in defense housing, and into dozens of more prosaic but equally important mechanical uses.

If you use tubing within the range of Bundy's sizes, you should hear Bundy's complete story. Bundy tubing is furnished in commercial lengths, or in completely fabricated parts, bent to shape and with necessary fittings, all ready to assemble into the finished product. Bundy Tubing Co., Detroit.

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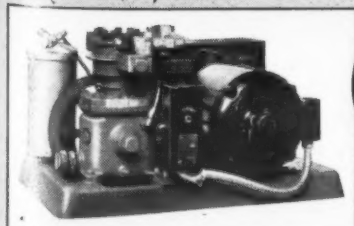


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Air Conditioning 'Saves Day' as War Revolutionizes Industrial Plants

New Buildings Now Cover Many Acres and Require Protection From Bombing

By F. O. Jordan

Tried and proven practices have a way of crystalizing into tradition. In general this is good, for it sets up standards that may be followed in confidence. If it were not true, every air conditioning job would be in danger of being used as a "guinea pig" for trying out "halfbaked" ideas.

Yet there is danger in tradition, too. If allowed to become too completely crystalized, the traditional becomes dogmatic. Improvement becomes difficult. Progress is penalized.

But traditions are difficult to break. Some powerful influence may be required. Often the required force is a great catastrophe, such as an earthquake. A notable example is San Francisco, where the past was

brushed aside in the twinkling of an eye when subterranean forces of cataclysmic proportions were released, and where a determined people arose from the ashes of the past tradition-free and created a new city.

The present war is proving to be the most potent tradition breaker of all time. Every moment of our lives, relics of the past are being destroyed. And in their stead are being created new things and practices designed to meet the new requirements of the changing times.

STANDARD PRACTICE BEFORE THE WAR

Suppose we review briefly standard practices in effect just before the war pertaining to the construction of industrial buildings. The old time multi-story factory with its poor lighting and tendency toward fire traps had long since given way to the one story structure with monitor type roof and walls constructed largely of steel sash.

The factory buildings we have been designing for the past several years have been arranged to take maximum advantage of natural lighting and the cooling effect of natural ventilation. Of course the largest of these buildings were limited to a few hundred thousand feet of floor area, and they were built long and narrow so the air entering through the open windows could sweep over as much of the floor area as possible.

Operable sash were installed in the high monitors and in the outside walls to obtain a stack effect which drew in outside air through the open windows in the walls and discharged it outside through the open sash in the monitors. In this way internal heat was allowed to escape from the building through the monitor sash and a certain convection cooling effect was obtained due to the draft coming in through the outside windows.

So "Nature's" air conditioning "got by" for a long time because

people had not learned to expect anything better.

RESULTS OF NATURE'S AIR CONDITIONING

This type of Nature's air conditioning generally prevents inside temperatures from rising more than 15 or 20° above the outside temperature in hot sultry weather with no wind. About the best thing that can be said is that it enables the factory worker to do his work in the shade. However, there are sometimes serious and always undesirable physiological effects when people are forced to work for long periods exposed to conditions when the air temperature is higher than the body temperature.

Unless the body can throw off its internal heat produced by metabolism, digestion, and muscular energy at a rate equal to the rate of heat production, its own temperature obviously must rise until intense discomfort, heat prostration, and eventually death occur.

The body normally throws off its heat to the environmental air by means of sensible transfer, which is possible only when the air temperature is below the surface temperature of the body, and by means of latent transfer due to absorption of sensible heat from the body to furnish the latent heat required for evaporation of perspiration.

When the temperature of the air rises above body temperature, the rate of perspiration must be greatly increased to prevent dangerous rise in body temperature. Furthermore, the heart works at an increased rate to raise the surface temperature of the body by pumping more blood through the circulatory system near the surface in the attempt to throw off more heat.

Results are overworking of the heart, robbing the stomach and other organs of the blood they require for their respective functions, loss of essential salts through excessive perspiration, and a general overworking and weakening of the worker when he needs his strength most. In addition to these physiological reactions to overheating are the psychological ones such as irritation, mental depression, general loss of interest, and other undesirable effects of acute discomfort.

In few words the result of discomfort due to excessive summer temperature is the traditional dip in the summer production curve. But now modern war comes along and smashes tradition.

MODERN WARFARE

In the past, war for the most part has been battle between armies occupying comparatively narrow fronts. Actual death and destruction were confined to these fronts. But now they are visitations rained on every foot of the belligerents' territory. The reason for this change is that war no longer is battle between human beings, it is a combat between machines, and these machines have a tremendous striking range. Mechanized columns strike through hundreds of miles in a few days. Bombers range everywhere constantly, leaving "total" death and destruction in their wake.

A constant preponderance of fighting machines in the field is essential to victory, for the belligerent with the most uninterrupted production must win. Since the mortality of fighting machines is high, production for replacement must be maintained. But due to the long range striking power of enemy machines, all production centers are vulnerable if they can be found by the enemy.

THE NEW TYPE BUILDINGS

So we have the new type factory buildings. They differ from the old in two ways.

First, the tremendous job of producing fighting machines as rapidly as those in the field of battle are destroyed by the fighting machines of the enemy, has resulted in buildings of enormous size, yet with great concentrations of workers and heat producing machinery. Thousands of men must toil all day long hundreds of feet from windows where air might enter.

Second, the dire necessity of concealment especially from night bombing has resulted in the "black-out" and the windowless building.

The floor area of some of the more recent factory buildings is astounding. Two years ago a few acres under one roof was something

to write home about. Recently the writer saw an article describing a new plant in which the point was stressed that actually five acres were covered under one roof. The author of that article lives in the past. We now have so many buildings covering areas so many times larger.

Recently we air conditioned one building covering 35 acres. This required a refrigerating effect of 6,000 tons. Our largest building under one roof is the Ford Bomber Plant. Its single roof covers 70 acres. Not many farms east of Buffalo are so large. The conditions maintained in such buildings with no artificial relief would be unlivable.

NATURE'S AIR CONDITIONING IN THE LARGE DEFENSE PLANT

Since these huge structures must be lightproof to prevent them from being picked off by bombers at night, they are practically airtight. Due to the tremendous concentrations of heat-producing machinery and the terrific heat of the mid-summer sun beating down on broad roof-aces, the temperature in one of these huge airtight buildings may rise to 150° and higher, even at the breathing line.

In fact, the average inside temperature will rise until the heat loss outward through the building construction equals the rate of heat gain due to internal and sun loads. The average temperature may readily be calculated by taking this fact into consideration, while the temperature at the breathing line may be estimated by considering the increase in temperature with rise in elevation due to stratification.

Human life cannot continue at such environmental conditions. Artificial relief is necessary, not merely to keep the summer production curve from dipping, but to sustain life.

PREVENTION AND REMOVAL

The necessity for relief suggests that heat must be prevented from entering the building in-so-far as practicable, and that excess heat must be removed. An extensive search has been made for materials that tend to keep the heat out economically, and various methods have been studied and developed for heat removal. None of these materials is always the best, as the usage and location of the buildings vary and the relative costs of materials differ in various localities.

WAYS OF KEEPING HEAT OUT

One of the most obvious ways of keeping the heat out in the summer, is to insulate the roof. The advantage of this method is that insulation helps keep the heat inside during the heating season, so that it works all the way around the calendar. When all factors are taken into consideration, the most economical insulating value for the average factory seems to be the equivalent of 1 inch of corkboard.

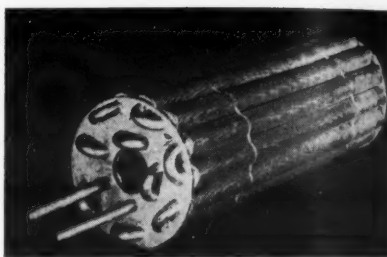
Of course the color of the roof has an important effect on the sun load while most of the sun's heat may be prevented from penetrating the roof by spraying it with water.

Water sprays seem to be a bit more effective than making use of white gravel or painting the roof with aluminum, but are somewhat more expensive, especially if no dependable supply of waste water exists. Either method may reduce the total load 15 or 20%, and it generally is economical to employ one or the other. However the law of diminishing returns generally means it is not worth while to use both methods together.

Since unprotected windows and skylights leave the door practically open for the sun's heat to enter, they

(Continued on Page 31, Column 1)

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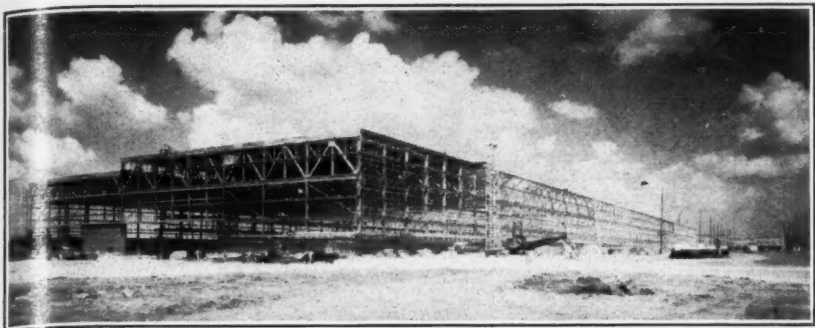
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Framework For a Windowless Plant



Good example of the radical changes brought about in factory buildings by modern warfare is the 4,000-ft. long windowless bomber assembly plant being constructed for the U. S. Army at Fort Worth, Tex. The building will be completely air conditioned.

Positive Mechanical Means Are Required To Remove the Excessive Heat From the Modern 'Blacked Out' Factory Building

(Continued from Page 30, Column 5) must be properly treated where they are used. The problem is to find methods which are effective in keeping the heat out without making the windows useless as windows by interfering too seriously with the entrance of light. If windows and skylights are omitted as in the windowless buildings, there is a considerable reduction in sunload. However, this reduction is partially offset by the heat input from the artificial illumination that becomes necessary at all times.

Of course, window shades and venetian blinds are not very suitable for use in the factory areas, although they are frequently used in the office portions. Colored glass such as "Aklo" (Libby-Owens) and "Coolite" (Pittsburgh Glass) have the desirable characteristic of shutting out much of the sun's heat without interfering seriously with natural illumination. Another very promising development is the combination sun and insect screen called "Koolshade" by its manufacturer, Borg-Warner.

In any event windows and skylights must be provided with some very positive and effective means for blackouts in case of war. Since white and aluminum roofs can readily be picked up at night by bomber pilots, they must be blackened if any likelihood of bombing attacks ever develops. Therefore, roofs must be designed so they may be sprayed with water if blackened to prevent an enormous increase in sunload as compared to the light colored roof.

METHODS OF HEAT REMOVAL

Even though every available means is utilized for keeping the heat out, considerable heat will force its way in during very hot weather. Furthermore, insulations actually aggravate comfort in-so-far as it is influenced by internal loads such as

motor loads, and product loads because they tend to prevent the heat from getting out of the building through the construction. Therefore, positive mechanical means must be provided for removing excess heat. In general, these means fall under the following classifications:

- Air Change
- Evaporative Cooling
- Well Water
- Refrigeration.

THE AIR CHANGE METHOD

As might be expected, the lowest priced method of removing heat by positive mechanical means is the air change method by means of which outside air is pumped through the building in sufficient quantity to prevent the inside temperature from rising more than a few degrees above outside temperature.

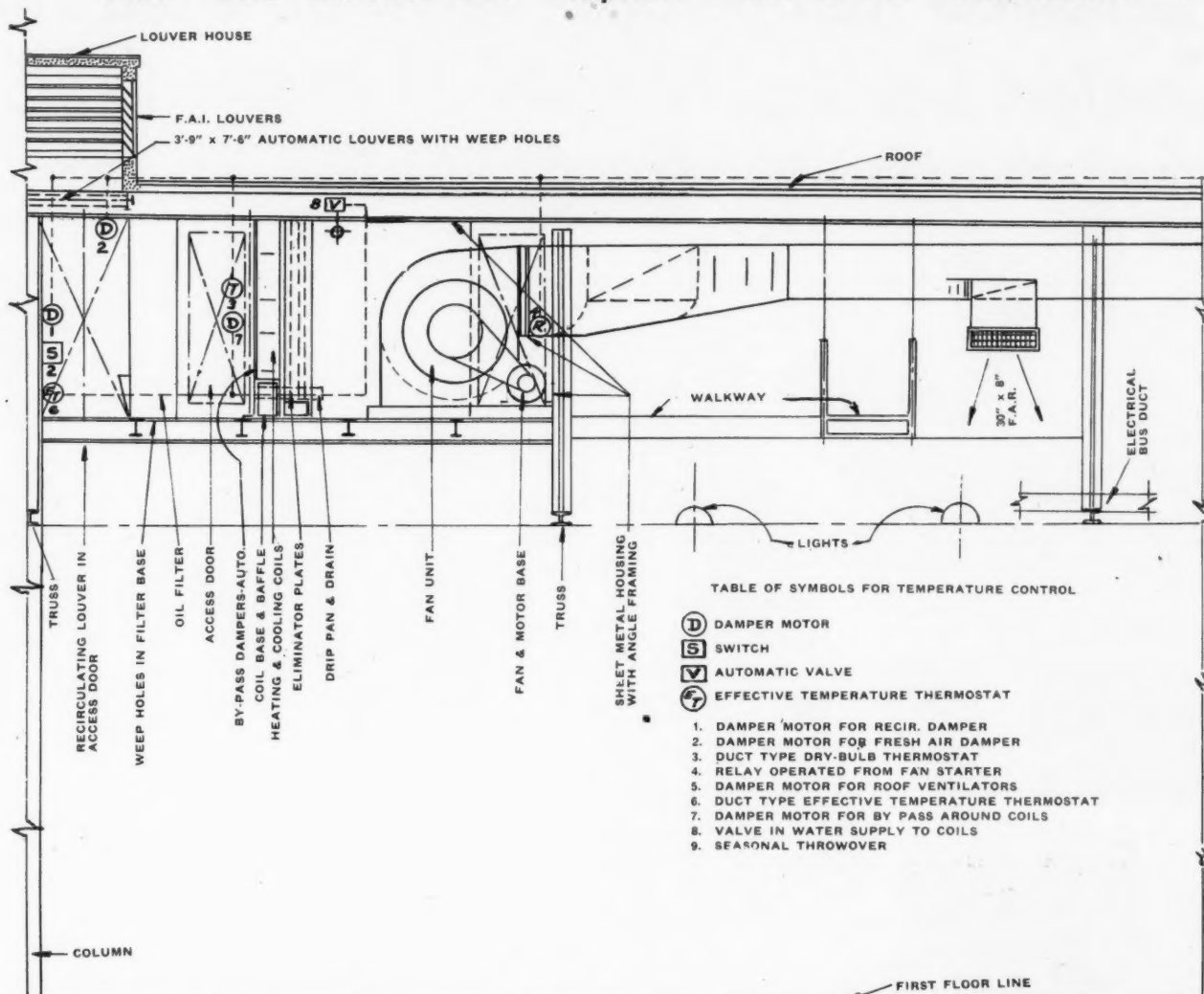
The necessary air quantity may be readily calculated by dividing the heat load by the product obtained by multiplying the temperature rise of the air in passing through the building by the specific heat. If the air is pulled off at the highest points of the roof, it must be remembered that its leaving temperature is considerably higher than the temperature at the breathing line.

For example, if the temperature to be maintained at the breathing line is 95° with an outside temperature of 90° and the roof is 20 feet higher than the breathing line, the leaving temperature will be about 115°.

Air may be introduced mechanically and a pressure maintained in the building which will force the heated air out through gravity ventilators located at the high points of the roof, although more positive control will be obtained if it is supplied mechanically and exhausted mechanically at the same time. The air supply mechanism may be a central system with ducts,

(Concluded on Page 32, Column 1)

How One 'Blacked-Out' Airplane Plant Is Air Conditioned



Above is a diagram of one of the 35 new type air conditioning systems used to cool the mammoth Wright Aeronautical airplane plant at Cincinnati. Control of the systems is based on "effective temperature."

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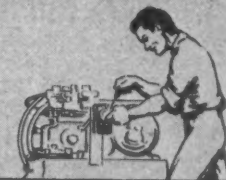
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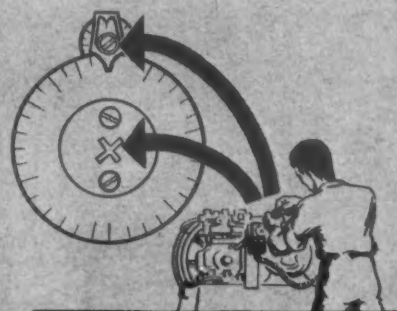
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Mechanical Refrigeration Must Be Used For 'Comfort Cooling' Factories In Most of U. S.

(Concluded from Page 31, Column 2)
or it may consist of motor driven supply ventilators.

The central system has the advantage of being able to filter the air and of serving in connection with complete air conditioning in the future if air conditioning coils are added. The mechanical unit ventilators have the advantage of lower first cost and the elimination of ducts that might interfere with illumination.

We are using the air change method for making most of the larger plants livable, several million square feet of factory floor space being cooled in this way. In the majority of cases, the unit system is installed. Generally these installations consist of mechanical supply

and exhaust ventilators of 10,000 c.f.m. capacity each.

Supply units take their air supply from a level at least 6 feet above the roof, as tests have proven the air temperature at this height to be practically at outside temperature, although the temperature indicated by an unshielded thermometer is higher due to radiant effect.

Discharge ducts from the supply units are extended down to the bottom of the truss space to avoid interfering with the natural tendency of the hot air to stratify close under the roof where it will not effect the breathing line temperature.

The ends of the ducts are provided with directional nozzles for discharging the air at a velocity of about 2,000 f.p.m. to obtain a convection cooling effect in the occupancy zone. The exhaust units are located at the high points of the roof so they will pull off the hot strata of air which collects there naturally.

We find that an air change of 2 c.f.m. per sq. ft. of floor space for the building with white or sprayed roof insulated with 1 inch of cork or equivalent will prevent the temperature at the breathing line from rising more than 5 or 10° above outside temperature.

For the black uninsulated roof, about 3 c.p.m. per sq. ft. of floor is required. The installation complete with supply and exhaust units is costing about 10 cents per c.f.m. Supply units alone cost about six cents per c.f.m. while exhaust units cost about four cents.

An interesting fact is that the omission of motor operated sash in favor of fixed sash just about pays for the unit type air change system, so the more positive results obtained

by the mechanical ventilators, especially in hot still weather, may be obtained at very little additional expense.

EVAPORATIVE COOLING

There are two schools of thought regarding evaporative cooling. One claims wonderful results for it, while the other says it is worse than useless. Both sides are right under certain conditions. The well known weakness of evaporative cooling is that it adds moisture to the air in absorbing sensible heat from it. This means that on an installation where a high percentage of the air is recirculated, or where a considerable proportion of the load is latent, the build-up of moisture in the building soon raises the humidity to uncomfortable levels.

However, evaporative cooling frequently lends itself to factory work because it is unnecessary to recirculate the air in a factory during summer, and the proportion of latent work in this service generally is very low due to the heavy sensible loads from sun effect and the heat input of motors and artificial illumination. Evaporative cooling units are available of both the spray type and the wetted surface type of which the "capillary" unit is a familiar example. Both types of evaporative cooling are available for application with central ventilating systems also.

Any efficient evaporative cooler will reduce the dry-bulb temperature to within a few degrees of the wet-bulb temperature, and of course leaves the wet-bulb temperature the same. Although the air is practically saturated as it leaves the unit, there is no great rise in humidity of the room if no air is recirculated, especially in a factory where most of the load is sensible.

The advantages of the evaporative method over the air change method are that it washes the air and that the air is supplied 10 to 20° colder depending on the efficiency of the evaporative cooler and the "spread" between the entering dry and wet-bulb temperatures. The disadvantage is the increased cost, as the evaporative cooling system generally is one-third to one-half more expensive than the unit type air change system.

WELL WATER

Well water, city water, or water from any other source may be used for cooling and dehumidifying the air in the factory if a dependable supply is available at a temperature low enough to be effective. It is ordinarily considered that water does not offer a satisfactory means of air conditioning unless it is 55 to 60° or colder as sufficient reduction in humidity cannot be obtained with warmer water with the latent loads generally found. However, satisfactory results may be obtained in factory work with water several degrees warmer, due to the high sensible loads that prevail.

Advantages of the well water system over the cooling methods already discussed are the reduction of humidity and the lower dry-bulb temperatures that may be maintained. The cost of the well water system generally is about double the cost of the unit type air change system, although there may be considerable variation due largely to the difference in cost of obtaining satisfactory wells and means of waste water disposal.

REFRIGERATION

Unless a supply of cold water is available, refrigeration must be used in most of the United States if conditions must be maintained in the accepted "comfort zone" at all times.

National Lock Co.,
Rockford, Illinois

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Other methods must be classified more as relief from extreme discomfort than as comfort installations except in very dry climates where evaporative cooling may maintain comfort and in mild climates.

As a rule, the central system of air distribution is employed, although many central systems may be required in some of the larger plants. In one instance, no less than 72 such systems were installed under one roof, and each system involved a duct system in the neighborhood of 400 feet long. As to the method of cooling the air, both the direct expansion and the indirect method are used.

Numerically speaking, the direct expansion method predominates. This is especially true of the smaller ones, although we have installed several direct expansion jobs in excess of 600 tons.

In the larger installations, the indirect system is liable to be lower in cost than the direct expansion job, especially if the plant is designed and controlled so the same water piping, pumps, air conditioning coils, ducts, and air handling apparatus are used both for summer cooling and winter heating.

In one 6,000-ton installation, several thousand dollars were saved by using a combination hot and chilled water system for all year air conditioning as compared to a plant involving steam heating for winter and direct expansion cooling for summer.

However, this was partially the result of the owner's requirement for using the boilers in the summer which made it necessary to include the cost of a 6,000 kva turbo-generator with the direct expansion job to compare with the steam turbine driven centrifugal refrigerating machines.

Probably the principal disadvantages of the direct expansion system for the larger installations are the large number of refrigerating machines that must be installed if production models are used, and the presence of refrigerants throughout the building which may present a hazard in case of bombing and fire.

However, the direct expansion adherents point out that this very distribution of refrigerating machines makes the air conditioning system more nearly immune from total destruction by bombing than the indirect plane with its concentration of water cooling equipment. There are many "pros and cons" to this controversy which have no place in this discussion.

Calculating the heat gain for the factory installation is a special problem. With the high ceilings of 25 or 30 feet commonly found it is necessary to take into account the temperature stratification or the equipment selection may be much too heavy. With a temperature of 80° at the breathing line, the temperature just under the roof may be approximately at outside temperature. Therefore, there may be little or no heat gain due to transmission in the upper portions.

Other factors that may escape the attention of the engineer not accustomed to factory work to his sorrow is the very heavy motor and process loads and the heavy outside air quantities sometimes required to replace air exhausted for process purposes.

Cost of the complete air conditioning system including housing for the equipment, cooling towers, and

other miscellaneous items will range from less than \$1 per sq. ft. of floor space to \$1.50 or more.

THE PERMANENT INFLUENCE

After this tradition-busting war completes its job of tradition-breaking, the pieces will fall into new alignments and crystallize into new traditions for future generations to follow. It is the duty of engineers to supervise the crystallization process and so create traditions carefully planned for the good of the world of tomorrow.

Referring to the construction and equipment of future industrial buildings, we must make sure the practice of utilizing the various methods for improving the lives of the occupants by minimizing heat gain during the long summer months is made permanent. Likewise, we must help establish the practice of advancing health and comfort in these buildings by positive mechanical removal of excess heat according to individual usage and requirements. This does not mean all buildings should be completely air conditioned regardless of economical justification.

When results are balanced against cost, it appears that offices, engineering departments, and similar occupancies should be completely air conditioned, while air change or evaporative cooling generally will suffice for factory spaces, with refrigeration being justified for special processes and for plants where the value and demand for the product justifies maximum production through the hot months.

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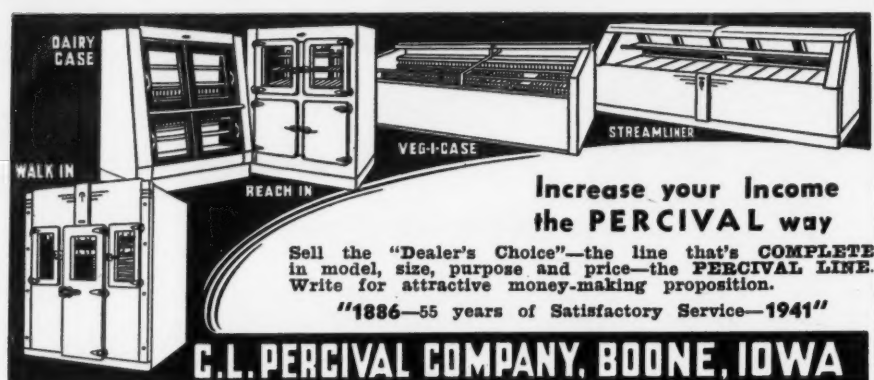
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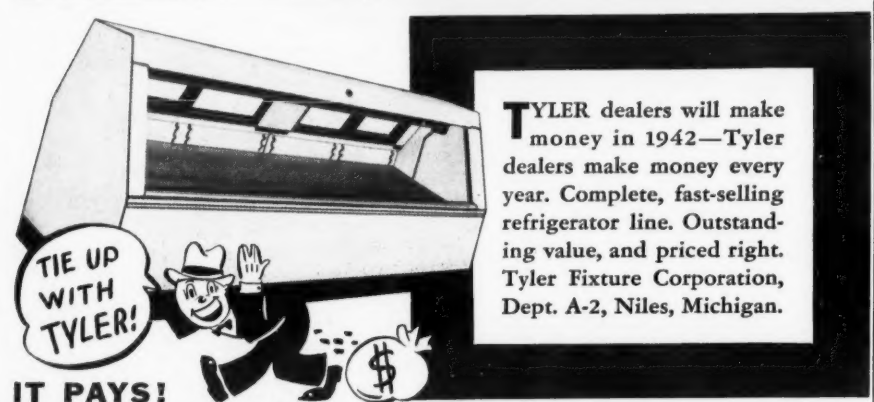
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How To Service Electric Motors Told In Series By R. A. Fuller

Editor's Note: Since virtually all mechanical refrigeration and air conditioning systems are powered with electric motors, knowledge of the construction and operation of motors is exceedingly helpful to the service man who occasionally encounters motor trouble on his service calls. This is particularly true today, with national defense measures forcing many equipment owners to "repair rather than replace."

This series of articles, which started in the Oct. 22 issue of the NEWS, aims to explain in easily understood terms the fundamentals of various types of electric motors, as well as giving valuable information on the installation, maintenance, and servicing of motors. The first section discussed direct current motors; the second, polyphase motors. The article below is part of the third section on single phase motors. After having read these introductory articles, the service man will be prepared for the instalments on servicing, etc. which will appear in future issues of the NEWS.

By R. A. Fuller, Industrial Engineering Dept., General Electric Co.

Single Phase Motors (Cont.)

Repulsion Start Motors

Repulsion start motors are used for heavy starting duty applications. They are operated in various ways. The brushes may, or may not, be raised off the commutator when the motor is running. If the same rotor winding is used for starting and running, the commutator is short circuited at about three-quarters speed to obtain a rotor winding that approximates the squirrel cage in its functioning. These are known as repulsion start-induction run motors.

Other designs have two rotor windings—a wound winding, connected to the commutator, and, underneath the wound winding, a squirrel cage winding. The appearance of this rotor is very similar to that of the direct current armature shown in Fig. 6. In this design no centrifugal mechanism is required as the magnetic conditions automatically transfer the burden from one winding to the other as the motor comes up to speed. This type is known as the repulsion-induction motor.

From the above discussion it is evident that the running conditions are as described for Fig. 35. It is also apparent that, again, the real problem is the starting of the motor. The principles of starting these repulsion start motors are all the same.

Fig. 41—Principle of Repulsion Start

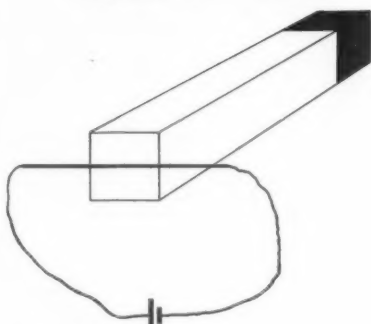


Fig. 41—Current from the battery (symbol at bottom) traveling through the wire tends to move the straight section of the wire, which is in the magnetic field of the permanent magnet.

The differences are caused by the ways the designers have exercised their electrical and mechanical skill in accomplishing the desired results.

There is an electrical principle that will be useful in discussing repulsion starting. Fig. 41 shows a wire stretched across the face of a magnet and connected to a battery. Under these conditions there is a force on the wire which, for example, tends to move this straight piece of wire upward. If the connections to the battery are reversed this wire tends to move downward. Thus we can demonstrate that a current carrying wire, in a magnetic field, has force on it tending to move it in a certain direction. Also that, if the direction of current flow in the wire is reversed, the force and motion are in the opposite direction.

Repulsion starting operates on this principle. Current is caused to flow in the wires of the rotor winding and

Fig. 42—'Balancing'

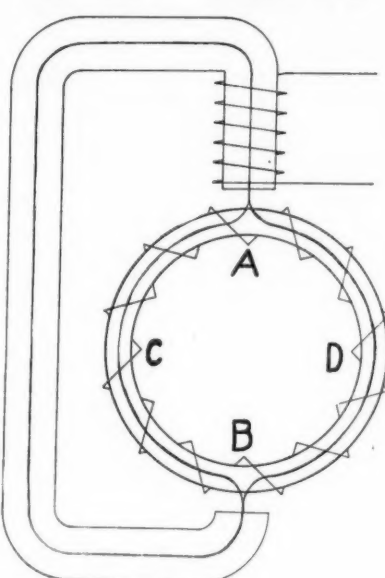


Fig. 42—Magnetism created in the C-shaped iron core by the coil carrying single phase current passes through each half of the iron ring, producing equal magnetic effects on both halves of the winding around the ring. Magnetic forces are thus neutralized and no motion takes place.

these wires are affected by a magnetic field. Fig. 42 illustrates a stationary "C" shaped iron core on which is mounted a coil connected to a single phase line. In the opening of the "C" is a ring of iron on which is wound a continuous uniform coil. The path of the magnetism, produced by the first coil, is around through the "C" shaped core and then, dividing equally, half of the magnetism passes through each half of the iron ring.

The winding and the magnetism are identical in both halves of the ring. Thus any effect which the magnetism may have on the winding between A and C, for example, should be the same as that produced in the winding between A and D. By test, connecting C and D together through an ammeter, it can be demonstrated that this is true, as no current flows when a wire is connected between C and D.

By further similar tests it can be shown that the maximum current will flow when a wire is connected between A and B. Thus the first requirement of our principle has been satisfied—with a wire connect-

ing A and B there is current flowing in the rotor winding.

Assume that the current flows upward in this wire from B to A. At point A it divides equally, half going to the winding to the left of A and the other half to the right. Referring to the wires on the outer surface of the ring, those on the right have the current flowing toward the observer while those on the left have the current flowing away from him. Thus the magnetic field from the "C" shaped core tends to force the wires on the right in one direction and those on the left in the other direction. The forces are equal and opposite so that they neutralize each other and no motion takes place.

It is therefore necessary to add a

(Concluded on Page 35, Column 2)

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Frigidaire Seeking Defense Orders

DAYTON, Ohio—Headed by Carl A. Copp, vice president of General Motors Sales Corp., a defense procurement committee for Frigidaire has been formed to consolidate all defense procurement efforts, formerly handled by several company departments.

P. M. Bratten, appliance sales division manager, will assume Mr. Copp's duties in addition to his present ones.

The new committee will endeavor to secure added defense orders for the company. One of the principal objects in seeking additional orders, officials said, was to stabilize employment in the company's plants.

The recent production curtailment in electric refrigerators has hit the local Frigidaire plants. However, the company now is manufacturing machine guns in a plant erected especially for this purpose, hydraulic control equipment for bombers, refrigeration apparatus concerned directly with defense, and other defense products.

Starting work slightly more than a year ago, Frigidaire now has about 3,000 employees engaged directly in production for defense, and expects to add about 3,000 men in its ordnance plant and about 1,500 more at the new propeller parts plant now under construction at Moraine City, just south of Dayton.

Square D Declares Dividend

DETROIT—Directors of Square D Co. have declared a dividend of \$1.50 a share on the common stock, bringing the total common dividends declared in 1941 to \$3 a share, compared with a total of \$2.80 a share declared in 1940. The dividend is payable Dec. 24.

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RATES for "Positions Wanted," 5¢ per word; minimum charge, \$2.50. Three consecutive insertions, 12½¢ per word; minimum charge \$6.25.

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Centrifugal Mechanism For 'Repulsion Start'

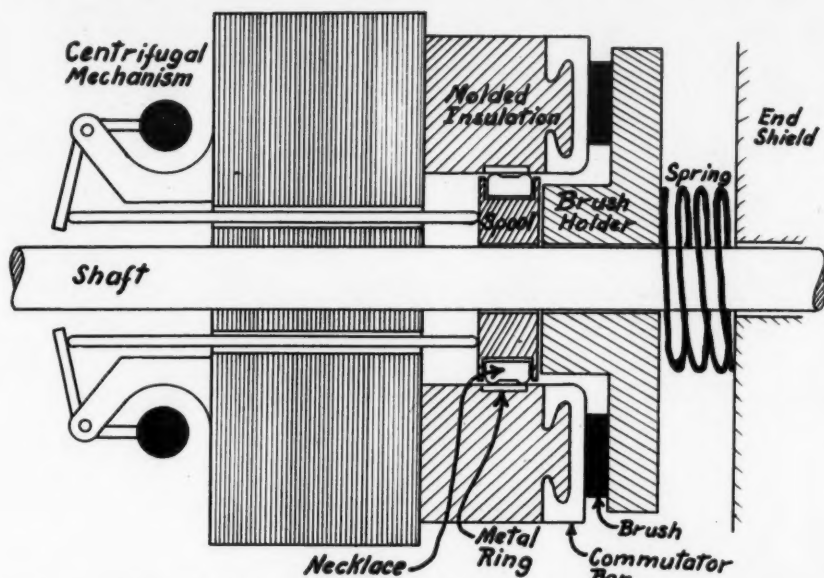


Fig. 44 represents the rotor of a brush-raising repulsion start-induction run motor with the motor stopped. Brush and the commutator bar, and necklace and metal ring are in contact, respectively.

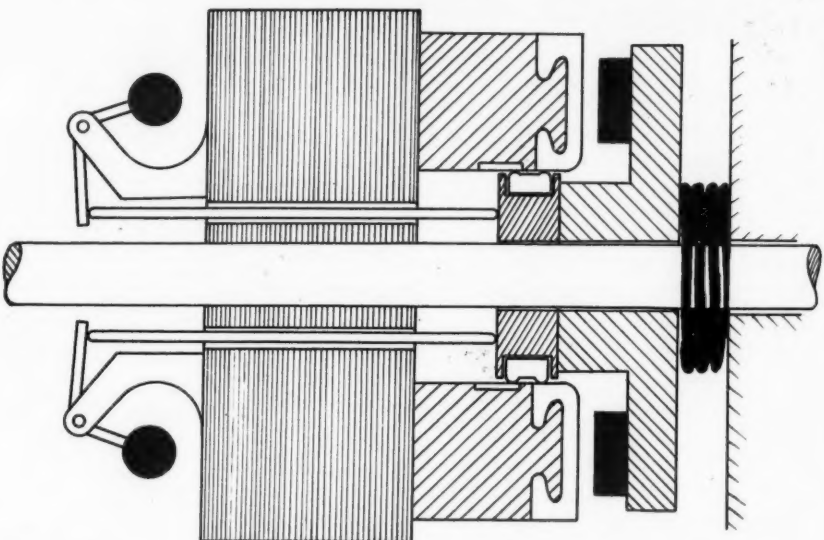


Fig. 45—When the repulsion start-induction run motor reaches three-quarters speed, the centrifugal mechanism forces the brushes away from the commutator and brings the necklace into contact with both the short-circuiting ring and the commutator bars. The motor then runs as an induction motor.

'Repulsion Start' Motors Described

(Concluded from Page 34, Column 5) magnetic field that can effectively react with the current in the rotor winding. This is readily done by adding another "C" shaped core with its coil as shown in Fig. 43. The rotor winding current under each tip of this "C" shaped core is all in the same direction and rotation is obtained. The wire from A to B, in Fig. 42, has been replaced with stationary brushes so that it con-

When the shaft rotates, centrifugal force causes these necklace pieces to press outward making good contact with the metal ring. In starting, at approximately three-quarters of full speed, the flyweights of the centrifugal mechanism move outward, as shown in Fig. 45, thus moving the long push rods to the right. In this way the spool is moved to the right so that the necklace pieces make contact with both the metal short circuiting ring and the commutator bars.

This movement of the spool also forces the brush holder to the right so that the brushes are raised from the commutator. When the motor stops, the spring returns the mechanism to the position shown in Fig. 44.

Fig. 43—How To Overcome Magnetic 'Balance'

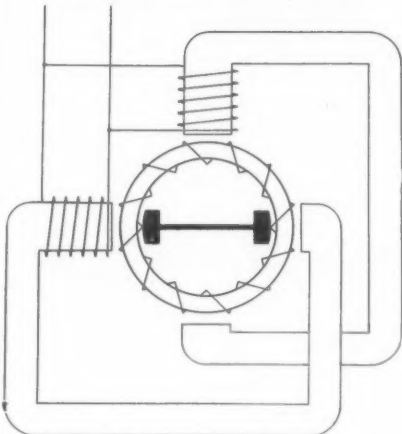


Fig. 43—By adding another C-shaped core to the diagram in Fig. 42, the magnetic field can be made to react with the rotor winding to produce rotation.

tinues to maintain this connection as the rotor turns.

The rotor of a brush raising repulsion start-induction run motor is shown in Fig. 44. The mechanism is similar in principle for a motor which does not raise the brushes. The mechanism is shown in the position it assumes when the motor is stopped. The brushes, brush holder, spring, and end shield do not rotate. All other parts shown rotate with the shaft. The necklace consists of numerous pieces of metal, approximately one-sixteenth of an inch thick, placed loosely in the spool with their edges outward.

Cosgrove Appointed To RMA Committee

CINCINNATI — R. C. Cosgrove, vice president and general manager of the manufacturing division of Crosley Corp., has been appointed a member of the priorities committee of Radio Manufacturers Association, to work with defense heads on all priority matters affecting the radio industry.

Recently elected to the board of directors of the RMA, Mr. Cosgrove has been taking a leading part in representing several industries in priority matters with the various government departments.

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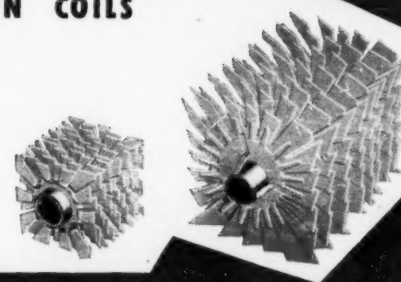
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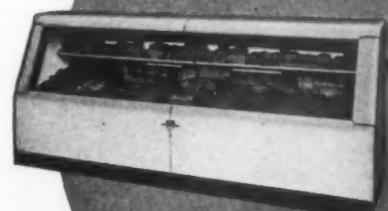
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